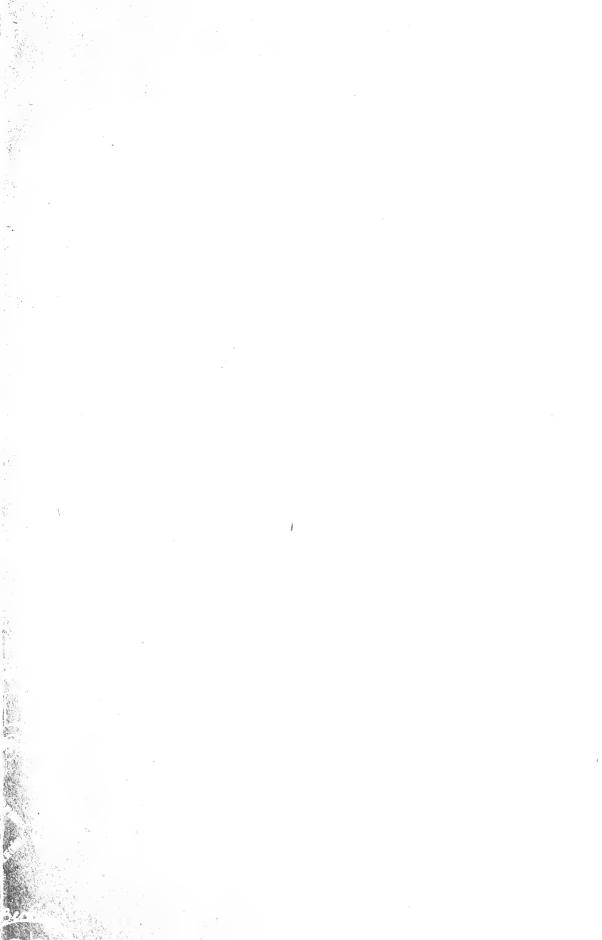


ASTRONOMY LHOUSE



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No. 9: Part II

Useful Tables from the American Practical Navigator

NATHANIEL BOWDITCH, LL. D., Etc.

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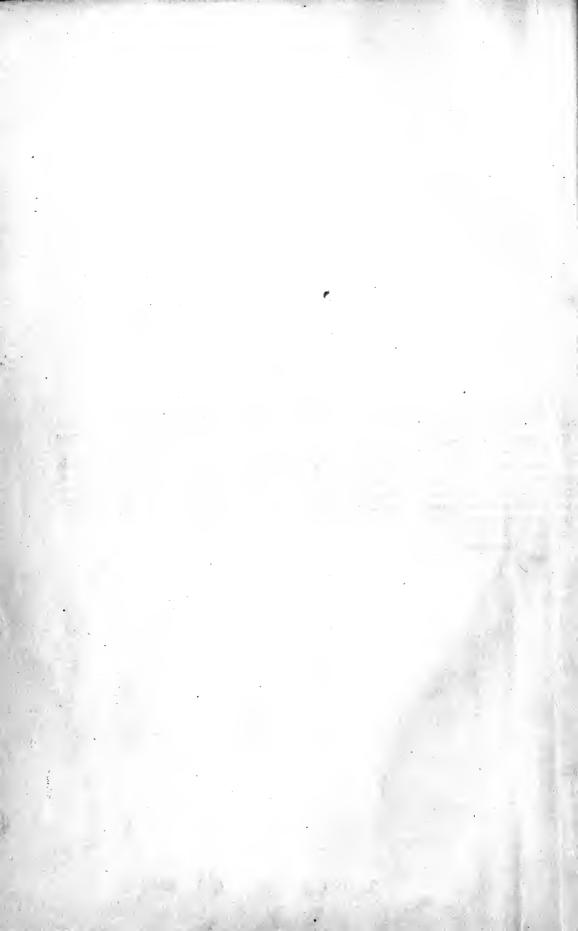
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EXPLANATION OF THE TABLES.

TABLES 1, 2: TRAVERSE TABLES.

Tables 1 and 2 were originally calculated by the natural sines taken from the fourth edition of Sherwin's Logarithms, which were previously examined, by differences; when the proof sheets of the first edition were examined the numbers were again calculated by the natural sines in the second edition of Hutton's Logarithms; and if any difference was found, the numbers were calculated a third time by Taylor's Logarithms.

The first table contains the difference of latitude and departure corresponding to distances not exceeding 300 miles, and for courses to every quarter point of the compass. Table 2 is of the same nature, but for courses consisting of whole degrees; it was originally of the same extent as Table 1, but has been extended to include distances up to 600 miles. The manner of using these tables is particularly explained under the different problems of Plane, Middle Latitude, and Mercator Sailing in Chapter V. The tables may be employed in the solution of any right triangle.

TABLE 3: MERIDIONAL PARTS.

This table contains the meridional parts, or increased latitudes, for every degree and minute to 80°, calculated by the following formula:

$$m = \frac{a}{M} \log \tan \left(45^{\circ} + \frac{L}{2} \right) - a \left(e^{2} \sin L + \frac{1}{3} e^{4} \sin^{3} L + \frac{1}{5} e^{6} \sin^{5} L + \dots \right),$$

in which

the Equatorial radius $a = \frac{10800'}{\pi} = 3437'.74677 \text{ (log } 3.5362739);$

M, the modulus of common logarithms = 0.4342945;

$$\frac{1}{\mathbf{M}} = 2.3025851 \ (\log 0.3622157);$$

C, the compression or meridional eccentricity of the earth

according to Clarke (1880) =
$$\frac{1}{293,465}$$
 = 0.003407562 (log 7.5324437); $e = \sqrt{2c - c^2}$ = 0.0824846 (log 8.9163666);

from which

 $\frac{a}{M} = 7915'.7044558 \ (\log 3.8984895);$

23'.38871 (log 1.3690072);

 $\frac{1}{3}ae^4 = 0'.053042 (\log 8.7246192);$

0'.000216523 (log 6.3355038).

The results are tabulated to one decimal place, which is sufficient for the ordinary problems of navigation.

The practical application of this table is illustrated in Chapters II and V, in articles treating of the Mercator Chart and Mercator Sailing.

TABLE 4: LENGTH OF DEGREES OF LATITUDE AND LONGITUDE.

This table gives the length of a degree in both latitude and longitude at each parallel of latitude on the earth's surface, in nautical and statute miles and in meters, based upon Clarke's value (1866) of the earth's compression, $\frac{1}{299.15}$ In the case of latitude, the length relates to an arc of which the given degree is the center.

TABLES 5A, 5B: DISTANCE BY TWO BEARINGS.

These tables have been calculated to facilitate the operation of finding the distance from an object by two bearings from a given distance run and course. In Table 5A the arguments are given in points, in Table 5B in degrees; the first column contains the multiplier of the distance run to give the distance of observed object at second bearing; the second, at time of passing abeam. The method is explained in article 143, Chapter IV.

TABLE 6: DISTANCE OF VISIBILITY OF OBJECTS.

This table contains the distances, in nautical and statute miles, at which any object is visible at sea. It is calculated by the formulæ:

$$d = 1.15 \sqrt{x}$$
, and $d' = 1.32 \sqrt{x}$,

in which d is the distance in nautical miles, d' the distance in statute miles, and x the height of the eye or the object in feet.

To find the distance of visibility of an object, the distance given by the table corresponding to its height should be added to that corresponding to the height of the observer's eye.

Example: Required the distance of visibility of an object 420 feet high, the observer being at an elevation of 15 feet.

Dist. corresponding to 420 feet, 23.5 naut. miles. Dist. corresponding to 15 feet, 4.4 naut. miles.

Dist. of visibility,

27.9 naut. miles.

TABLE 7: CONVERSION OF ARC AND TIME.

In the first column of each pair in this table are contained angular measures expressed in arc (degrees, minutes, or seconds), and in the second column the corresponding angles expressed in time (hours, minutes, or seconds). As will be seen from the headings of columns, the time corresponding to degrees (°) is given in hours and minutes; to minutes of arc ('), in minutes and seconds of time; and to seconds of arc ("), in seconds and sixtleths of a second of time.

The table will be especially convenient in dealing with longitude and hour angle. The method of

its employment is best illustrated by examples.

EXAMPLE I.

Required the time corresponding to 50° 31′ 21″.

Example II.

Required the arc corresponding to 6^h 33^m 26^s.5.

TABLES 8 AND 9: SIDEREAL AND MEAN SOLAR TIMES.

These tables give, respectively, the reductions necessary to convert intervals of sidereal time into those of mean solar time, and intervals of mean solar into those of sidereal time. The reduction for any interval is found by entering with the number of hours at the top and the number of minutes at the side, adding the reduction for seconds as given in the margin.

The relations between mean solar and sidereal time intervals, and the methods of conversion of

these times, are given in articles 289-291, Chapter IX.

TABLE 10: SUN'S RISING AND SETTING.

This table gives the local mean time of the sun's visible rising and setting—that is, of the appearance and disappearance of the sun's upper limb in the unobstructed horizon of a person whose eye is 15 feet above the level of the earth's surface, the atmospheric conditions being normal.

The local apparent times of rising and setting were determined from the formula for a time sight, the altitude employed being -0° 56′ 08″, made up of the following terms: Refraction, -36′ 29″; semi-diameter, -16′ 00″; dip, -3′ 48″; and parallax, +9″.

To ascertain the time of rising or setting for any given date and place, enter the table with the latitude and declination, interpolating if the degrees are not even. In the line R will be found the time of rising; in the line S, the time of setting. Be careful to choose the page in which the latitude is of the correct name, and in which the "approximate date" corresponds nearly or exactly with the the correct name, and in which the "approximate date" corresponds, nearly or exactly, with the given date.

This table is computed with the intention that, if accuracy is desired, it will be entered with the declination as an argument—not the date—as it is impossible to construct any table based upon dates whose application shall be general to all years. But as a given degree of declination will, in the majority of years, fall upon the date given in the table as the "approximate date," and as, when it does not do so, it can never be more than one day removed therefrom, it will answer, where a slight inaccuracy may be admitted, to enter the table with the date as an argument, thus avoiding the neces-

sity of ascertaining the declination. EXAMPLE: Find the local mean time of sunset at Rio de Janeiro, Brazil (lat. 22° 54′ S., long.

43° 10′ W.), on January 1, 1903 (dec. 23° 04′ S.). Exact method.

Approximate method.

TABLE 11: REDUCTION FOR MOON'S TRANSIT.

This table was calculated by proportioning the daily variation of the time of the moon's passing the meridian.

The numbers taken from the table are to be added to the Greenwich time of moon's transit in west longitude, but subtracted in east longitude.

TABLE 12: REDUCTIONS FOR NAUTICAL ALMANAC.

This is a table of proportional parts for finding the variation of the sun's right ascension or declination, or of the equation of time, in any number of minutes of time, the horary motion being given at the top of the page in seconds, and the number of minutes of time in the side column; also for finding the variation of the moon's declination or right ascension in any number of seconds of time, the motion in one minute being given at the top, and the numbers in the side column being taken for seconds.

TABLE 13: CHANGE OF SUN'S RIGHT ASCENSION.

This is a table that may be employed for finding the change of the sun's right ascension for any given number of hours, the hourly change, as taken from the Nautical Almanac, being given in the marginal columns.

TABLE 14: DIP OF SEA HORIZON.

This table contains the dip of the sea horizon, calculated by the formula:

$$D = 58''.8 \sqrt{\bar{F}}$$

in which F = height of the eye above the level of the sea in feet.

It is explained in article 300, Chapter X.

TABLE 15: DIP SHORT OF HORIZON.

This table contains the dip for various distances and heights, calculated by the formula:

$$D = \frac{3}{7}d + 0.56514 \times \frac{h}{d},$$

in which D represents the dip in miles or minutes, d, the distance of the land in sea miles, and h, the height of the eye of the observer in feet.

TABLE 16: PARALLAX OF SUN.

This table contains the sun's parallax in altitude calculated by the formula:

par. =
$$\sin z \times 8''.75$$
,

in which z = apparent zenith distance, the sun's horizontal parallax being 8".75. It is explained in article 304, Chapter X.

TABLE 17: PARALLAX OF PLANET.

Parallax in altitude of a planet is found by entering at the top with the planet's horizontal parallax, and at the side with the altitude.

TABLE 18: AUGMENTATION OF MOON'S SEMIDIAMETER.

This table gives the augmentation of the moon's semidiameter calculated by the formula:

$$x = c s^2 \sin h + \frac{1}{2} c^2 s^3 \sin^2 h + \frac{1}{2} c^2 s^3$$

where h = moon's apparent altitude;

s = moon's horizontal semidiameter;

x = augmentation of semidiameter for altitude h; and

 $\log c = 5.25021$.

TABLE 19: AUGMENTATION OF MOON'S HORIZONTAL PARALLAX.

This table contains the augmentation of the moon's horizontal parallax, or the correction to reduce the moon's equatorial horizontal parallax to that point of the earth's axis which lies in the vertical of the observer in any given latitude; it is computed by the formulæ:

$$\Delta \pi = \pi (b-1), \qquad \qquad b = \frac{1}{\sqrt{(1-e^2 \sin^2 L)}},$$

where $\pi = \text{equatorial horizontal parallax};$

L = latitude;

 $e = \text{eccentricity of the meridian; log } e^2 = 7.81602; \text{ and}$

 $\Delta \pi$ = augmentation of the horizontal parallax for the latitude L.

TABLE 20A: MEAN REFRACTION.

This table gives the refraction, reduced from Bessel's tables, for a mean atmospheric condition in which the barometer is 30.00 inches, and thermometer 50° Fahr.

TABLE 20B: MEAN REFRACTION AND PARALLAX OF SUN.

This table contains the correction to be applied to the sun's apparent altitude for mean refraction and parallax, being a combination of the quantities for the altitudes given in Tables 16 and 20A.

TABLES 21, 22: CORRECTIONS OF REFRACTION FOR BAROMETER AND THERMOMETER.

These are deduced from Bessel's tables. The method of their employment will be evident.

TABLE 23: MEAN REFRACTION AND MEAN PARALLAX OF MOON.

This table contains the correction of the moon's altitude for refraction and parallax corresponding to the mean refraction (Table 20A), and a horizontal parallax of the mean value of 57′ 30″.

TABLE 24: MEAN REFRACTION AND PARALLAX OF MOON.

This table contains the correction to be applied to the moon's apparent altitude for each minute of horizontal parallax, and for every 10' of altitude from 5°, with height of barometer 30.00 inches, and thermometer 50° Fahr.

For seconds of parallax, enter the table abreast the approximate correction and find the seconds of horizontal parallax, the tens of seconds at the side and the units at the top. Under the latter and opposite the former will be the seconds to add to the correction.

For minutes of altitude, take the seconds from the extreme right of the page, and apply them as there directed.

TABLE 25: CHANGE OF ALTITUDE DUE TO CHANGE OF DECLINATION.

This table gives the variation of the altitude of any heavenly body arising from a change of 100" in the declination. It is useful for finding the equation of equal altitudes by the approximate method explained in article 324, Chapter XI, and for other purposes.

If the change move the body toward the elevated pole, apply the correction to the altitude with the

signs in the table; otherwise change the signs.

TABLE 26: CHANGE OF ALTITUDE IN ONE MINUTE FROM MERIDIAN.

This table gives the variation of the altitude of any heavenly body, for one minute of time from meridian passage, for latitudes up to 60°, declinations to 63°, and altitudes between 6° and 86°. It is based upon the method set forth in article 334, Chapter XII, and the values may be computed by the formula:

$$a = \frac{1^{\prime\prime}.9635 \cos L \cos d}{\sin (L - d)},$$

where a =variation of altitude in one minute from meridian,

L = latitude, and

d=declination—positive for same name and negative for opposite name to latitude at upper

transit, and negative for same name at lower transit.

The limits of the table take in all values of latitude, declination, and altitude which are likely to be required. In its employment, care must be taken to enter the table at a place where the declination is appropriately named (of the same or opposite name to the latitude); it should also be noted that at the bottom of the last three pages values are given for the variation of a body at *lower* transit, which can only be observed when the declination and latitude are of the same name, and in which case the reduction to the meridian is subtractive; the limitations in this case are stated at the *foot* of the page, and apply to all values below the heavy rules.

TABLE 27: CHANGE OF ALTITUDE IN GIVEN TIME FROM MERIDIAN.

This table gives the product of the variation in altitude in one minute of a heavenly body near the meridian, by the square of the number of minutes. Values are given for every half minute between 0^m 30^s and 26^m 0^s, and for all variations likely to be employed in the method of "reduction to the meridian."

The formula for computing is:

 $Red. = a \times t^2,$

where a = variation in one minute (Table 26), and

t = number of minutes (in units and tenths) from time of meridian passage.

The table is entered in the column of the nearest interval of time from meridian, and the value taken out corrresponding to the value of a found from Table 26. The units and tenths are picked out separately and combined, each being corrected by interpolation for intermediate intervals of time.

The result is the amount to be applied to the observed altitude to reduce it to the meridian altitude,

which is always to be added for upper transits and subtracted for lower.

TABLE 28, A, B, C, D: LATITUDE BY POLARIS.

OMITTED.

TABLES 29, 30, 31: CONVERSION TABLES.

These are self-explanatory.

TABLE 32: TRUE FORCE AND DIRECTION OF WIND.

This table enables an observer on board of a moving vessel to determine the true force and direction of the wind from its apparent force and direction. Enter the table with the apparent direction of the wind (number of points on the bow) and force (Beaufort scale) as arguments, and pick out the direction relatively to the ship's head and the force corresponding to the known speed of the ship.

Example: A vessel steaming SE. at a speed of 15 knots appears to have a wind blowing from three points on the starboard bow with a force of 6, Beaufort scale. What is the true direction and force?

In the column headed 3 (meaning three points on bow, apparent direction) and in the line 6 (apparent force, Beaufort scale), we find abreast 15 (knots, speed of vessel) that the true direction is 5 points on starboard bow, i. e., S. by W., and true force 4.

TABLE 33: VERTICAL ANGLES.

This table gives the distance of an object of known height by the vertical angle that it subtends at the position of the observer. It was computed by the formula:

 $\tan \alpha = \frac{h}{d},$

where α = the vertical angle;

h = the height of the observed object in feet; and d =the distance of the object, also converted into feet.

The employment of this method of finding distance is explained in article 139, chapter IV.

TABLE 34: HORIZON ANGLES.

This shows the distance in yards corresponding to any observed angle between an object and the sea horizon beyond, the observer being at a known height. The method of use is explained in article 139, chapter IV.

This table shows the rate of speed, in nautical miles per hour, of a vessel which traverses a measured mile in any given number of minutes and seconds. It is entered with the number of minutes at the top and the number of seconds at the side; under one and abreast the other is the number of knots of speed.

TABLE 35: SPEED TABLE.

TABLE 36: LOCAL AND STANDARD TIMES.

This table contains the reduction to be applied to the local time to obtain the corresponding time at any other meridian whose time is adopted as a standard. The results are given to the nearest minute of time only; being intended for the reduction of such approximate quantities as the time of high water or time of sunset. More exact reductions, when required, may be made by Table 7.

TABLE 37: LOGARITHMS FOR EQUAL ALTITUDE SIGHTS.

OMITTED 1

TABLE 37A: EQUATION OF EQUAL ALTITUDES NEAR NOON.

[OMITTED.]

TABLE 38: EFFECT UPON LONGITUDE OF ERROR IN LATITUDE.

 Table 38 shows, approximately, the error in longitude in miles and tenths of a mile, occasioned by an error of one mile in the latitude.

Thus, when the sun's altitude is 30°, the latitude 30°, and the polar distance 100°, the error is

eight-tenths of a mile.

The effect of an increase of latitude is as follows:

In West longitude, { East } of meridian, the { decreased } except where marked { increased } the body being { West } longitude is { increased } ' by *, when it is { decreased } .

In East longitude, { East } of meridian, the { increased } except where marked { decreased } the body being { West } olongitude is { decreased } 'by *, when it is { increased } .

A decrease of latitude has the contrary effect.

The direction of error may readily be seen by drawing the Sumner line in a direction at right angles to the approximate bearing of the body.

TABLE 39: AMPLITUDES.

This table contains amplitudes of heavenly bodies, at rising and setting, for various latitudes and declinations, computed by the formula:

sin amp.=sec Lat. ×sin dec.

It is entered with the declination at the top and the latitude at the side. Its use is explained in article 358, Chapter XIV.

TABLE 40: CORRECTION FOR AMPLITUDES.

This table gives a correction to be applied to the observed amplitude to counteract the vertical displacement due to refraction, parallax, and dip, when the body is observed with its center in the visible horizon.

The correction is to be applied for the sun, a planet, or a star, as follows:

At Rising in N. Lat. apply the correction to the right. At Rising in S. Lat. apply the correction to the left. Setting in N. Lat. apply the correction to the left.

For the moon, apply half the correction in the contrary manner.

TABLE 41: NATURAL SINES AND COSINES.

This table contains the natural sine and cosine for every minute of the quadrant, and is to be entered at the top or bottom with the degrees, and at the side marked M., with the minutes; the corresponding numbers will be the natural sine and cosine, respectively, observing that if the degrees are found at the top, the name sine, cosine, and M. must also be found at the top, and the contrary if the degrees are found at the bottom. It should be understood that all numbers given in the table should be divided by 100,000—that is, pointed off to contain five decimal places. Thus, .43366 is the natural sine of 25° 42′, or the cosine of 64° 18′.

In the outer columns of the margin are given tables of proportional parts, for the purpose of finding, approximately, by inspection, the proportional part corresponding to any number of seconds in the proposed angle, the seconds being found in the marginal column marked M., and the correction in the adjoining column. Thus, if we suppose that it were required to find the natural sine corresponding to 25° 42′ 19″, the difference of the sines of 25° 42′ and 25° 43′ is 26, being the same as at the top of the left-hand column of the table; and in this column, and opposite 19 in the column M., is the correction 8. Adding this to the above number .43366, because the numbers are increasing, we get .43374 for the sine of 25° 42′ 19″. In like manner, we find the cosine of the same angle to be .90108—4=.90104, using the right-hand columns, and subtracting because the numbers are decreasing; observing, however, that the number 14 at the top of this column varies 1 from the difference between the cosines of 25° 42′ and 25° 43′, which is only 13; so that the table may give in some cases a unit too much between the angles 25° 42′ and 25° 43′; but this is, in general, of but little importance, and when accuracy is required, the usual method of proportional parts is to be resorted to, using the actual tabular difference.

TABLE 42: LOGARITHMS OF NUMBERS.

This table, containing the common logarithms of numbers, was compared with Sherwin's, Hutton's, and Taylor's logarithms; its use is explained in an article on Logarithms in Appendix III.

TABLE 43: LOGARITHMS OF TRIGONOMETRIC FUNCTIONS, QUARTER POINTS.

This table contains the logarithms of the sines, tangents, etc., corresponding to points and quarter points of the compass. This was compared with Sherwin's, Hutton's, and Taylor's logarithms.

TABLE 44: LOGARITHMS OF TRIGONOMETRIC FUNCTIONS, DEGREES.

This table contains the common logarithms of the sines, tangents, secants, etc. It was compared with Sherwin's, Hutton's, and Taylor's tables. Two additional columns are given in this table, which are very convenient in finding the time from an altitude of the sun; also, three columns of proportional parts for seconds of space, and a small table at the bottom of each page for finding the proportional parts for seconds of time. The degrees are marked to 180°, which saves the trouble of subtracting the given angle from 180° when it exceeds 90°.

The use of this table is fully explained in Appendix III in an article on Logarithms.

TABLE 45: LOGARITHMIC AND NATURAL HAVERSINES.

The haversine is defined by the following relation:

hav.
$$A = \frac{1}{2}$$
 vers. $A = \frac{1}{2}(1 - \cos A) = \sin^2 \frac{1}{2}A$.

It is a trigonometric function which simplifies the solution of many problems in nautical astronomy as well as in plane trigonometry. To afford the maximum facility in carrying out the processes of solution, the values of the natural haversine and its logarithm are set down together in a single table for all values of angle ranging from 0° to 360°, expressed both in arc and in time.

TABLE 46: CORRECTIONS TO BE APPLIED IN ORDER TO FIND THE TRUE ALTITUDE OF A STAR AND ALSO OF THE SUN FROM THE OBSERVED ALTITUDE ABOVE THE HORIZON.

This is a consolidated table in which the tabulated correction for an observed altitude of a star combines the mean refraction and the dip, and that for an observed altitude of the sun's lower limb combines the mean refraction, the dip, the parallax, and the mean semidiameter, which is taken as 16'. A supplementary table at the foot of the main table takes account of the variation of the sun's semidiameter in the different months of the year.

TABLE 47: THE LONGITUDE FACTOR.

The change in longitude due to a change of 1' in latitude, called the longitude factor, F, is given in *this table at suitable intervals of latitude and azimuth. The quantities tabulated are computed from the formula-

When a time sight is solved with a dead-reckoning latitude, the resulting longitude is only true if the latitude be correct. This table, by setting forth the number of minutes of longitude due to each minute of error in latitude, gives the means of finding the correction to the longitude for any error that

may subsequently be disclosed in the latitude used in the calculation.

Regarding the azimuth of the observed celestial body as less than 90° and as measured from either the North or the South point of the horizon towards East or West, the rule for determining whether the correction in longitude is to be applied to the eastward or to the westward will be as follows: If the change in latitude is of the same name as the first letter of the bearing, the change in longitude is of the

contrary name to that of the second letter, and vice versa.

Thus, if the body bears S. 45° E. and the change in latitude is to the southward, the change in longitude will be to the westward; and, if the change in latitude is to the northward, the change in longitude will be to the eastward.

The convenient application of the longitude factor in finding the intersection of Sumner lines is explained in article 389.

TABLE 48: THE LATITUDE FACTOR.

The change in latitude due to a change of 1' in the longitude, called the latitude factor, f, is given in this table at suitable intervals of latitude and azimuth. The quantities tabulated, being the reciprocals of the values of the longitude factor, are computed from the formula-

$$f = \frac{1}{F} = \frac{1}{\sec. \text{ Lat.} \times \cot. \text{ Az.}} = \cos. \text{ Lat.} \times \tan. \text{ Az.}$$

When an ex-meridian sight is solved with a longitude afterwards found to be in error, this table, by setting forth the number of minutes of latitude due to each 1' of error in longitude, gives the means

of finding the correction in the latitude for the amount of error in the longitude used in the calculation.

Regarding the azimuth of the observed celestial body as less than 90° and as measured from either the North or the South point of the horizon towards East or West, the rule for determining whether the correction in latitude is to be applied to the northward or to the southward is as follows: If the change in longitude is of the same name as the second letter of the bearing, the change in latitude is of the contrary name to the first letter, and vice versa. Thus, if the body bears S. 14° E. and the change in longitude is to the westward, the change in latitude will be to the southward, and, if the change in longitude is to the eastward, the change in latitude will be to the northward.

The convenient application of the latitude factor in finding the intersection of Sumner lines is

explained in article 390.

Difference of Latitude and Departure for ½ Point.

N. 1 W. S. 1 E.

	N. ½ E. N. ½ W. S. ½ E. S. ½ W.													
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.0	61	60.9	3.0	121	120. 9	5.9	181	180.8	8.9	241	240.7	11.8
2	2.0	0.1	62	61.9	3.0	22 23	121.9 122.9	6.0	82	181.8	8.9	42	241. 7	11.9
3 4	$\frac{3.0}{4.0}$	$\begin{array}{c} 0.1 \\ 0.2 \end{array}$	63 64	62. 9 63. 9	3.1	23 24	122.9 123.9	6. 0 6. 1	83 84	182. 8 183. 8	9. 0 9. 0	43 44	242.7 243.7	11.9 12.0
5	5.0	0.2	65	64. 9	3. 2 3. 2	25	124.8	6.1	85	184.8	9.1	45	244.7	12.0
6	6.0	0.3	66	65.9	3.2	26	125.8	6. 2	86	185.8	9.1	46	245.7	12.1
7 8	7. 0 8. 0	0.3 0.4	67 68	66. 9 67. 9	3.3 3.3	27 28	126.8 127.8	6. 2 6. 3	87 88	186. 8 187. 8	9. 2 9. 2	47 48	246.7 247.7	12.1
9	9.0	0.4	69	68.9	3.4	29	128.8	6.3	89	188.8	9.3	49	248. 7	12. 2 12. 2
10	10.0	0.5	70	69.9	3.4	30	129.8	6.4	90	189.8	9.3	50	249.7	12.3
11	11.0	0.5	71	70.9	3, 5	131	130.8	6.4	191	190.8	9.4	251	250. 7	12.3
12 13	12.0 13.0	0.6	72 73	71.9 72.9	3.5	$\frac{32}{33}$	131. 8 132. 8	6.5	92 93	191. 8 192. 8	9. 4 9. 5	52 53	251. 7 252. 7	12. 4 12. 4
14	14.0	0.7	74	73.9	3.6	34	133.8	6.6	94	193.8	9.5	54	253. 7	12.5
15	15.0	0.7	75	74.9	3. 7	35	134.8	6.6	95	194.8	9.6	55	254. 7	12.5
16 17	16. 0 17. 0	0.8	76 77	75.9 76.9	3. 7 3. 8	36 37	135. 8 136. 8	6. 7 6. 7	96 97	195. 8 196. 8	$9.6 \\ 9.7$	56 57	255. 7 256. 7	12.6 12.6
18	18.0	0.9	78	77. 9	3.8	38	137.8	6.8	98	197.8	9.7	58	257.7	12.7
19	19.0	0.9	79	78.9	3.9	39	138.8	6.8	99	198.8	9.8	5 9	258.7	12.7
20	20.0	1.0	80	79.9	3.9	40	139.8	$\frac{6.9}{0.0}$	200	199.8	9.8	60	259.7	12.8
21 22	$21.0 \\ 22.0$	1.0 1.1	81 82	80. 9 81. 9	4. 0 4. 0	141 42	140. 8 141. 8	6. 9 7. 0	$\begin{array}{c} 201 \\ 02 \end{array}$	200. 8 201. 8	9. 9 9. 9	$\begin{array}{c} 261 \\ 62 \end{array}$	260. 7 261. 7	12.8
23	23.0	1. 1	83	82. 9	4.1	43	142.8	7.0	03	202.8	10.0	63	262. 7	12.9 12.9
24	24.0	1.2	84	83. 9	4.1	44	143.8	7.1	04	203.8	10.0	64	263. 7	13.0
25 26	25.0 26.0	$1.2 \\ 1.3$	85 86	84. 9 85. 9	4. 2 4. 2	45 46	144.8 145.8	7. 1 7. 2	05 06	204. 8 205. 8	10. 1 10. 1	65 66	264. 7 265. 7	13. 0 13. 1
27	27. 0	1.3	87	86. 9	4.3	47	146.8	7. 2	07	206. 8	10.1	67	266.7	13. 1
28	28.0	1.4	88	87.9	4.3	48	147.8	7.3	08	207.7	10.2	68	267. 7	13. 2 13. 2
29 30	29.0	1.4	89	88.9	4.4	49	148.8	7.3	09	208. 7	10.3	69	268.7	13.2
31	$\frac{30.0}{31.0}$	$\frac{1.5}{1.5}$	$\frac{90}{91}$	89. 9	$\frac{4.4}{4.5}$	$\frac{50}{151}$	$\frac{149.8}{150.8}$	$\begin{array}{c c} 7.4 \\ \hline 7.4 \end{array}$	$\frac{10}{211}$	$\frac{209.7}{210.7}$	$\frac{10.3}{10.4}$	$\frac{70}{271}$	$\frac{269.7}{270.7}$	13. 2 13. 3
32	32. 0	1.6	92	91.9	4.5	52	151.8	7.5	12	211.7	10.4	72	271.7	13. 3
33	33.0	1.6	93	92.9	4.6	53	152.8	7.5	13	212. 7	10.5	73	272.7	13.4
34 35	34. 0 35. 0	1.7 1.7	94 95	93. 9 94. 9	4.6 4.7	54 55	153. 8 154. 8	7. 6 7. 6	14 15	213.7 214.7	10.5 10.5	74 75	273. 7 274. 7	13. 4 13. 5
36	36.0	1.8	96	95. 9	4.7	56	155.8	7.7	16	215.7	10.6	76	275. 7	13.5
37	37.0	1.8	97	96.9	4.8	57	156.8	7.7	17	216.7 217.7	10.6	77	276.7	13.6
38 39	38. 0 39. 0	$\frac{1.9}{1.9}$	98 99	97.9	4.8 4.9	58 59	157.8	7.8 7.8	18	217.7	10.7	78	277.7	13.6
40	40.0	2.0	100	98. 9 99. 9	4.9	60	158.8 159.8	7.9	19 20	218. 7 219. 7	10.7 10.8	79 80	278. 7 279. 7	13. 7 13. 7
41	41.0	2.0	101	100.9	5.0	161	160.8	7.9	221	220.7	10.8	281	280.7	13.8
42	41.9	2.1	02	101.9	5.0	62	161.8	7.9	22	221. 7	10.9	82	281.7	13. 8 13. 9
43 44	42. 9 43. 9	$\begin{array}{c} 2.1 \\ 2.2 \end{array}$	03 04	102.9 103.9	5. 1 5. 1	63 64	162. 8 163. 8	8. 0 8. 0	23 24	222.7 223.7	10. 9 11. 0	83 84	282. 7 283. 7	13. 9 13. 9
45	44.9	2. 2	05	103.9	5. 2	65	164.8	8.1	25	224.7	11.0	85	284.7	14.0
46	45.9	2.3	06	105.9	5.2	66	165.8	8.1	26	225.7	11.1	86	285.7	14. 0 14. 0
47 48	46. 9 47. 9	2.3 2.4	07 08	106.9 107.9	5.3 5.3	67 68	166.8 167.8	8. 2 8. 2	27 28	$226.7 \\ 227.7$	11.1	87	286.7	14.1
49	48.9	2. 4	09	107.9	5. 3	69	168.8	8.2	28 29	227.7	11. 2 11. 2	88 89	287. 7 288. 7	14. 1 14. 2
50	49.9	2.5	10	109.9	5.4	70	169.8	8.3	30	229.7	11.3	90	289.7	14.2
51	50.9	2.5	111	110.9	5.4	171	170.8	8.4	231	230. 7	11.3	291	290.6	14.3
52 53	51. 9 52. 9	2.6 2.6	12 13	111.9 112.9	5. 5 5. 5	72 73	171. 8 172. 8	8. 4 8. 5	32 33	231.7 232.7	11.4 11.4	92 93	291. 6 292. 6	14.3 14.4
54	53. 9	2.6	14	113.9	5.6	74	173.8	8.5	34	233. 7	11.5	94	293.6	14.4
55	54.9	2.7	15	114.9	5.6	75	174.8	8.6	35	234.7	11.5	95	294.6	14.5
56 57	55. 9 56. 9	2.7 2.8	16 17	115.9 116.9	5.7 5.7	76 77	175.8 176.8	8. 6 8. 7	36 37	235. 7 236. 7	11.6 11.6	96 97	295. 6 296. 6	14.5 14.6
58	57.9	2.8	18	117.9	5.8	78	177.8	8.7	38	237.7	11. 7	98	290. 6	14.6
59	58.9	2.9	19	118.9	5.8	79	178.8	8.8	39	238.7	11.7	99	298.6	14.7
60	59.9	2.9	20	119.9	5. 9	80	179.8	8.8	40	239.7	11.8	300	299.6	14.7
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
· · · · ·		N.		E. 1 S.			W. 1 N.			V. 1 S.			or 7 ³ / ₄ Po	
												-		

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TABLE 1.

Difference of Latitude and Departure for $\frac{1}{2}$ Point.

	N. ½ E. N. ½ W. S. ½ E. S. ½ W. ist. Lat. Dep. Dist. Dep. Dist. Lat. Dep. Dist. Dep. Dep. Dist. Dep. Dist. Dep. Dist. Dep. Dist. Dep. Dep.													
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1 2 3	1.0 2.0 3.0	0.1 0.2 0.3	61 62 63	60. 7 61. 7 62. 7	6. 0 6. 1 6. 2 6. 3	121 22 23 24	120. 4 121. 4 122. 4 123. 4	11.9 12.0 12.1 12.2	181 82 83 84	180. 1 181. 1 182. 1 183. 1	17. 7 17. 8 17. 9 18. 0	241 42 43	239. 8 240. 8 241. 8 242. 8	23. 6 23. 7 23. 8 23. 9
4 5 6 7 8	4. 0 5. 0 6. 0 7. 0 8. 0	0.4 0.5 0.6 0.7 0.8	64 65 66 67 68	63. 7 64. 7 65. 7 66. 7 67. 7	6. 4 6. 5 6. 6 6. 7	25 26 27 28	123. 4 124. 4 125. 4 126. 4 127. 4	12. 2 12. 3 12. 4 12. 4 12. 5	85 86 87 88	184.1 185.1 186.1 187.1	18.1 18.2 18.3 18.4	44 45 46 47 48	242. 8 243. 8 244. 8 245. 8 246. 8	24. 0 24. 1 24. 2 24. 3
0 10	9.0 10.0	0.9 1.0	69 70	68.7 69.7	6. 8 6. 9	29 30	128.4 129.4	12. 6 12. 7	89 90	188.1 189.1	18. 5 18. 6	49 50	247. 8 248. 8 249. 8	24. 4 24. 5 24. 6
11 12 13 14 15 16 17 18	10. 9 11. 9 12. 9 13. 9 14. 9 15. 9 16. 9 17. 9	1.1 1.2 1.3 1.4 1.5 1.6 1.7	71 72 73 74 75 76 77 78	70. 7 71. 7 72. 6 73. 6 74. 6 75. 6 76. 6 77. 6	7.0 7.1 7.2 7.3 7.4 7.4 7.5 7.6	131 32 33 34 35 36 37 38	130. 4 131. 4 132. 4 133. 4 134. 3 135. 3 136. 3 137. 3	12. 8 12. 9 13. 0 13. 1 13. 2 13. 3 13. 4 13. 5	191 92 93 94 95 96 97 98	190. 1 191. 1 192. 1 193. 1 194. 1 195. 1 196. 1 197. 0	18.7 18.8 18.9 19.0 19.1 19.2 19.3 19.4	251 52 53 54 55 56 57 58	249. 8 250. 8 251. 8 252. 8 253. 8 254. 8 255. 8 256. 8	24. 6 24. 7 24. 8 24. 9 25. 0 25. 1 25. 2 25. 3
19 20 21	18. 9 19. 9 20. 9	$\begin{array}{c} 1.3 \\ 1.9 \\ 2.0 \\ \hline 2.1 \end{array}$	79 80 81	78. 6 79. 6 80. 6	$ \begin{array}{r} 7.7 \\ 7.8 \\ \hline 7.9 \end{array} $	$ \begin{array}{r} 39 \\ 40 \\ \hline 141 \end{array} $	$ \begin{array}{r} 138.3 \\ 139.3 \\ \hline 140.3 \end{array} $	13. 6 13. 7 13. 8	99 200 201	198. 0 199. 0 200. 0	19.5 19.6 19.7	$\frac{59}{60}$	$ \begin{array}{r} 257.8 \\ 258.7 \\ \hline 259.7 \end{array} $	25. 4 25. 5 25. 6
22 23 24 25 26 27	21. 9 22. 9 23. 9 24. 9 25. 9 26. 9	2. 2 2. 3 2. 4 2. 5 2. 5 2. 6	82 83 84 85 86	81. 6 82. 6 83. 6 84. 6 85. 6	8. 0 8. 1 8. 2 8. 3 8. 4 8. 5	42 43 44 45 46	141. 3 142. 3 143. 3 144. 3 145. 3 146. 3	13. 9 14. 0 14. 1 14. 2 14. 3 14. 4	02 03 04 05 06 07	201. 0 202. 0 203. 0 204. 0 205. 0 206. 0	19. 8 19. 9 20. 0 20. 1 20. 2 20. 3	62 63 64 65 66 67	260. 7 261. 7 262. 7 263. 7 264. 7 265. 7	25. 7 25. 8 25. 9 26. 0 26. 1 26. 2
28 29 30 31 32	$ \begin{array}{r} 20.9 \\ 27.9 \\ 28.9 \\ 29.9 \\ \hline 30.9 \\ 31.8 \end{array} $	2. 7 2. 8 2. 9 3. 0 3. 1	87 88 89 90 91 92	86. 6 87. 6 88. 6 89. 6 90. 6 91. 6	8.6 8.7 8.8 8.9 9.0	$ \begin{array}{r} 47 \\ 48 \\ 49 \\ 50 \\ \hline 151 \\ 52 \end{array} $	147. 3 148. 3 149. 3 150. 3 151. 3	14. 4 14. 5 14. 6 14. 7 14. 8 14. 9	08 09 10 211 12	207. 0 208. 0 209. 0 210. 0 211. 0	20. 3 20. 4 20. 5 20. 6 20. 7 20. 8	68 69 70 271 72	266. 7 267. 7 268. 7 269. 7 270. 7	26. 3 26. 4 26. 5 26. 6 26. 7
33 34 35 36 37	32. 8 33. 8 34. 8 35. 8 36. 8	3. 2 3. 3 3. 4 3. 5 3. 6	93 94 95 96 97	92. 6 93. 5 94. 5 95. 5 96. 5	9. 1 9. 2 9. 3 9. 4 9. 5	53 54 55 56 57	152. 3 153. 3 154. 3 155. 2 156. 2	15. 0 15. 1 15. 2 15. 3 15. 4	13 14 15 16 17	212. 0 213. 0 214. 0 215. 0 216. 0	20.9 21.0 21.1 21.2 21.3	73 74 75 76 77	271. 7 272. 7 273. 7 274. 7 275. 7	26. 8 26. 9 27. 0 27. 1 27. 2
38 39 40	37. 8 38. 8 39. 8	3.7 3.8 3.9	98 99 100	97.5 98.5 99.5	9.6 9.7 9.8	58 59 60	157. 2 158. 2 159. 2	15. 5 15. 6 15. 7	18 19 20	$ \begin{array}{r} 217.0 \\ 217.9 \\ 218.9 \\ \hline 219.9 \end{array} $	21. 4 21. 5 21. 6	78 79 80	$ \begin{array}{r} 276.7 \\ 277.7 \\ 278.7 \\ \hline 279.6 \end{array} $	27. 2 27. 3 27. 4
41 42 43 44 45 46 47 48 49 50	40.8 41.8 42.8 43.8 44.8 45.8 46.8 47.8 49.8	4.0 4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8	101 02 03 04 05 06 07 08 09 10	100. 5 101. 5 102. 5 103. 5 104. 5 105. 5 106. 5 107. 5 108. 5 109. 5	9.9 10.0 10.1 10.2 10.3 10.4 10.5 10.6 10.7	161 62 63 64 65 66 67 68 69 70	160. 2 161. 2 162. 2 163. 2 164. 2 165. 2 166. 2 167. 2 168. 2 169. 2	15. 8 15. 9 16. 0 16. 1 16. 2 16. 3 16. 4 16. 5 16. 6 16. 7	221 22 23 24 25 26 27 28 29 30	220. 9 221. 9 222. 9 223. 9 224. 9 225. 9 226. 9 227. 9 228. 9	21. 7 21. 8 21. 9 22. 0 22. 1 22. 2 22. 2 22. 3 22. 4 22. 5	281 82 83 84 85 86 87 88 89 90	280. 6 281. 6 282. 6 283. 6 284. 6 285. 6 286. 6 287. 6 288. 6	27.5 27.6 27.7 27.8 27.9 28.0 28.1 28.2 28.3 28.4
51 52 53 54 55 56 57 58 59 60	50. 8 51. 7 52. 7 53. 7 54. 7 55. 7 56. 7 57. 7 58. 7 59. 7	5.0 5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9	111 12 13 14 15 16 17 18 19 20	110. 5 111. 5 112. 5 113. 5 114. 4 115. 4 116. 4 117. 4 118. 4 119. 4	10.9 11.0 11.1 11.2 11.3 11.4 11.5 11.6 11.7	171 72 73 74 75 76 77 78 79 80	170. 2 171. 2 172. 2 173. 2 174. 2 175. 2 176. 1 177. 1 178. 1 179. 1	16.8 16.9 17.0 17.1 17.2 17.3 17.3 17.4 17.5	231 32 33 34 35 36 37 38 39 40	229. 9 230. 9 231. 9 232. 9 233. 9 234. 9 235. 9 236. 9 237. 8 238. 8	22. 6 22. 7 22. 8 22. 9 23. 0 23. 1 23. 2 23. 3 23. 4 23. 5	291 92 93 94 95 96 97 98 99 300	289. 6 290. 6 291. 6 292. 6 293. 6 294. 6 295. 6 296. 6 297. 6 298. 6	28. 5 28. 6 28. 7 28. 8 28. 9 29. 0 29. 1 29. 2 29. 3 29. 4
Dist.	Dep. E. ½ N.	Lat.	Dist.	Dep. E. ½ S.	Lat.	Dist.	Dep. W. ½ N.	Lat.	Dist.	Dep. W ½ S.	Lat.	Dist.	Dep.	Lat.
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Difference of Latitude and Departure for $\frac{3}{4}$ Point. N. $\frac{3}{4}$ W. S. $\frac{3}{4}$ E. S. $\frac{3}{4}$ W.

		N. 4 E.]	N. ¾ W	•		S. ³ / ₄ E.			S. 3 W	•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1 2 3 4 5	1.0 2.0 3.0 4.0	0. 1 0. 3 0. 4 0. 6	61 62 63 64	60. 3 61. 3 62. 3 63. 3	9. 0 9. 1 9. 2 9. 4	121 22 23 24	119. 7 120. 7 121. 7 122. 7 123. 6	17. 8 17. 9 18. 0 18. 2 18. 3	181 82 83 84	179. 0 180. 0 181. 0 182. 0 183. 0	26. 6 26. 7 26. 9 27. 0 27. 1	241 42 43 44 45	238. 4 239. 4 240. 4 241. 4 242. 3	35. 4 35. 5 35. 7 35. 8 35. 9
6 7 8 9	4.9 5.9 6.9 7.9 8.9 9.9	0.7 0.9 1.0 1.2 1.3 1.5	65 66 67 68 69 70	64. 3 65. 3 66. 3 67. 3 68. 3 69. 2	9.5 9.7 9.8 10.0 10.1 10.3	25 26 27 28 29 30	123. 6 124. 6 125. 6 126. 6 127. 6 128. 6	18. 5 18. 6 18. 8 18. 9 19. 1	85 86 87 88 89 90	183. 0 184. 0 185. 0 186. 0 187. 0	27. 3 27. 4 27. 6 27. 7 27. 9	46 47 48 49 50	243. 3 244. 3 245. 3 246. 3 247. 3	36. 1 36. 2 36. 4 36. 5 36. 7
11 12 13 14 15 16 17 18 19	10.9 11.9 12.9 13.8 14.8 15.8 16.8 17.8	1.6 1.8 1.9 2.1 2.2 2.3 2.5 2.6 2.8	71 72 73 74 75 76 77 78 79	70.2 71.2 72.2 73.2 74.2 75.2 76.2 77.2 78.1	10.4 10.6 10.7 10.9 11.0 11.2 11.3 11.4 11.6	131 32 33 34 35 36 37 38 39	129. 6 130. 6 131. 6 132. 5 133. 5 134. 5 135. 5 136. 5 137. 5	19. 2 19. 4 19. 5 19. 7 19. 8 20. 0 20. 1 20. 2 20. 4	191 92 93 94 95 96 97 98 99	188. 9 189. 9 190. 9 191. 9 192. 9 193. 9 194. 9 195. 9 196. 8	28. 0 28. 2 28. 3 28. 5 28. 6 28. 8 28. 9 29. 1 29. 2	251 52 53 54 55 56 57 58 59	248.3 249.3 250.3 251.3 252.2 253.2 254.2 255.2 256.2	36.8 37.0 37.1 37.3 37.4 37.6 37.7 37.9 38.0
20 21 22 23 24 25 26 27 28 29 30	19.8 20.8 21.8 22.8 23.7 24.7 25.7 26.7 27.7 28.7 29.7	2.9 3.1 3.2 3.4 3.5 3.7 3.8 4.0 4.1 4.3 4.4	80 81 82 83 84 85 86 87 88 89 90	79. 1 80. 1 81. 1 82. 1 83. 1 84. 1 85. 1 86. 1 87. 0 88. 0 89. 0	11. 7 11. 9 12. 0 12. 2 12. 3 12. 5 12. 6 12. 8 12. 9 13. 1 13. 2	40 '141 42 43 44 45 46 47 48 49 50	138. 5 139. 5 140. 5 141. 5 142. 4 143. 4 144. 4 145. 4 146. 4 147. 4 148. 4	20.5 20.7 20.8 21.0 21.1 21.3 21.4 21.6 21.7 21.9 22.0	200 201 02 03 04 05 06 07 08 09 10	197. 8 198. 8 199. 8 200. 8 201. 8 202. 8 203. 8 204. 8 205. 7 206. 7 207. 7	29. 3 29. 5 29. 6 29. 8 29. 9 30. 1 30. 2 30. 4 30. 5 30. 7 30. 8	60 261 62 63 64 65 66 67 68 69 70	257. 2 258. 2 259. 2 260. 2 261. 1 262. 1 263. 1 264. 1 265. 1 266. 1 267. 1	38. 1 38. 3 38. 4 38. 6 38. 7 38. 9 39. 0 39. 2 39. 3 39. 5 39. 6
31 32 33 34 35 36 37 38 39 40	30. 7 31. 7 32. 6 33. 6 34. 6 35. 6 36. 6 37. 6 38. 6 39. 6	4.5 4.7 4.8 5.0 5.1 5.3 5.4 5.6 5.7 5.9	91 92 93 94 95 96 97 98 99 100	90. 0 91. 0 92. 0 93. 0 94. 0 95. 0 96. 0 96. 9 97. 9 98. 9	13. 4 13. 5 13. 6 13. 8 13. 9 14. 1 14. 2 14. 4 14. 5 14. 7	151 52 53 54 55 56 57 58 59 60	149. 4 150. 4 151. 3 152. 3 153. 3 154. 3 155. 3 156. 3 157. 3 158. 3	22. 2 22. 3 22. 4 22. 6 22. 7 22. 9 23. 0 23. 2 23. 3 23. 5	211 12 13 14 15 16 17 18 19 20	208. 7 209. 7 210. 7 211. 7 212. 7 213. 7 214. 7 215. 6 216. 6 217. 6	31. 0 31. 1 31. 3 31. 4 31. 5 31. 7 31. 8 32. 0 32. 1 32. 3	271 72 73 74 75 76 77 78 79 80	268. 1 269. 1 270. 0 271. 0 272. 0 273. 0 274. 0 275. 0 276. 0 277. 0	39. 8 39. 9 40. 1 40. 2 40. 4 40. 5 40. 6 40. 8 40. 9 41. 1
41 42 43 44 45 46 47 48 49 50	40.6 41.5 42.5 43.5 44.5 45.5 46.5 47.5 48.5 49.5	6.0 6.2 6.3 6.5 6.6 6.7 6.9 7.0 7.2 7.3	101 02 03 04 05 06 07 08 09 10	99. 9 100. 9 101. 9 102. 9 103. 9 104. 9 105. 8 106. 8 107. 8 108. 8	14.8 15.0 15.1 15.3 15.4 15.6 15.7 15.8 16.0 16.1	161 62 63 64 65 66 67 68 69 70	159. 3 160. 2 161. 2 162. 2 163. 2 164. 2 165. 2 166. 2 167. 2 168. 2	23.6 23.8 23.9 24.1 24.2 24.4 24.5 24.7 24.8 24.9	221 22 23 24 25 26 27 28 29 30	218. 6 219. 6 220. 6 221. 6 222. 6 223. 6 224. 5 225. 5 226. 5 227. 5	32. 4 32. 6 32. 7 32. 9 33. 0 33. 2 33. 3 33. 5 33. 6 33. 7	281 82 83 84 85 86 87 88 89 90	278. 0 278. 9 279. 9 280. 9 281. 9 282. 9 283. 9 284. 9 285. 9 286. 9	41. 2 41. 4 41. 5 41. 7 41. 8 42. 0 42. 1 42. 3 42. 4 42. 6
51 52 53 54 55 56 57 58 59 60	50. 4 51. 4 52. 4 53. 4 54. 4 55. 4 56. 4 57. 4 58. 4 59. 4	7.5 7.6 7.8 7.9 8.1 8.2 8.4 8.5 8.7 8.8	111 12 13 14 15 16 17 18 19 20	109. 8 110. 8 111. 8 112. 8 113. 8 114. 7 115. 7 116. 7 117. 7 118. 7	16. 3 16. 4 16. 6 16. 7 16. 9 17. 0 17. 2 17. 3 17. 5 17. 6	171 72 73 74 75 76 77 78 79 80	169. 1 170. 1 171. 1 172. 1 173. 1 174. 1 175. 1 176. 1 177. 1 178. 1	25. 1 25. 2 25. 4 25. 5 25. 7 25. 8 26. 0 26. 1 26. 3 26. 4	231 32 33 34 35 36 37 38 39 40	228. 5 229. 5 230. 5 231. 5 232. 5 233. 4 234. 4 235. 4 236. 4 237. 4	33. 9 34. 0 34. 2 34. 3 34. 5 34. 6 34. 8 34. 9 35. 1 35. 2	291 92 93 94 95 96 97 98 99 300	287. 9 288. 8 289. 8 290. 8 291. 8 292. 8 293. 8 294. 8 295. 8 296. 8	42. 7 42. 8 43. 0 43. 1 43. 3 43. 4 43. 6 43. 7 43. 9 44. 0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep. W. ³ / ₄ N	Lat.	Dist.	Dep. W. 3 S	Lat.	Dist.	Dep.	Lat.
E. ³ / ₄ N. E. ³ / ₄ S.						*** 4 1	•		4	•	۲.	J. , 4 I		

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TABLE 1.

Difference of Latitude and Departure for 1 Point.

NT	h.,	T
17.	UV	Ľ

TAT.	1	337
IN.	$\mathbf{D}\mathbf{V}$	w.

S. by E.

S. by W.

L	st. Lat. Dep. Dist. Lat. Dep.													
Dist.	ist. Lat. Dep. Dist. Lat. Dep. Dist. Lat. Dep. Dist. Lat. Dep. Dist. Lat. Dep.													
1 2 3 4 5 6 7 8 9	1.0 2.0 2.9 3.9 4.9 5.9 6.9 7.8 8.8	0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6	61 62 63 64 65 66 67 68 69	59. 8 60. 8 61. 8 62. 8 63. 8 64. 7 65. 7 66. 7	11. 9 12. 1 12. 3 12. 5 12. 7 12. 9 13. 1 13. 3 13. 5	121 22 23 24 25 26 27 28 29	118. 7 119. 7 120. 6 121. 6 122. 6 123. 6 124. 6 125. 5	23. 6 23. 8 24. 0 24. 2 24. 4 24. 6 24. 8 25. 0 25. 2	181 82 83 84 85 86 87 88 89	177. 5 178. 5 179. 5 180. 5 181. 4 182. 4 183. 4 184. 4	35. 3 35. 5 35. 7 35. 9 36. 1 36. 3 36. 5 36. 7	241 42 43 44 45 46 47 48 49	236. 4 237. 4 238. 3 239. 3 240. 3 241. 3 242. 3 243. 2 244. 2	47. 0 47. 2 47. 4 47. 6 47. 8 48. 0 48. 2 48. 4 48. 6
10	9.8	2.0	70	68. 7	13. 7	30	127. 5	25. 4	90	186.3	37. 1	50	245. 2	48.8
11	10.8	2.1	71	69. 6	13. 9	131	128. 5	25. 6	191	187.3	37. 3	251	246. 2	49.0
12	11.8	2.3	72	70. 6	14. 0	32	129. 5	25. 8	92	188.3	37. 5	52	247. 2	49.2
13	12.8	2.5	73	71. 6	14. 2	33	130. 4	25. 9	93	189.3	37. 7	53	248. 1	49.4
14	13.7	2.7	74	72. 6	14. 4	34	131. 4	26. 1	94	190.3	37. 8	54	249. 1	49.6
15	14.7	2.9	75	73. 6	14. 6	35	132. 4	26. 3	95	191.3	38. 0	55	250. 1	49.7
16	15.7	3.1	76	74. 5	14. 8	36	133. 4	26. 5	96	192.2	38. 2	56	251. 1	49.9
17	16.7	3.3	77	75. 5	15. 0	37	134. 4	26. 7	97	193.2	38. 4	57	252. 1	50.1
18	17.7	3.5	78	76. 5	15. 2	38	135. 3	26. 9	98	194.2	38. 6	58	253. 0	50.3
19	18.6	3.7	79	77. 5	15. 4	39	136. 3	27. 1	99	195.2	38. 8	59	254. 0	50.5
20	19.6	3.9	80	78. 5	15. 6	40	137. 3	27. 3	200	196.2	39. 0	60	255. 0	50.7
21	20. 6	4. 1	81	79. 4	15. 8	141	138. 3	27. 5	201	197. 1	39. 2	261	256. 0	50. 9
22	21. 6	4. 3	82	80. 4	16. 0	42	139. 3	27. 7	02	198. 1	39. 4	62	257. 0	51. 1
23	22. 6	4. 5	83	81. 4	16. 2	43	140. 3	27. 9	03	199. 1	39. 6	63	257. 9	51. 3
24	23. 5	4. 7	84	82. 4	16. 4	44	141. 2	28. 1	04	200. 1	39. 8	64	258. 9	51. 5
25	24. 5	4. 9	85	83. 4	16. 6	45	142. 2	28. 3	05	201. 1	40. 0	65	259. 9	51. 7
26	25. 5	5. 1	86	84. 3	16. 8	46	143. 2	28. 5	06	202. 0	40. 2	66	260. 9	51. 9
27	26. 5	5. 3	87	85. 3	17. 0	47	144. 2	28. 7	07	203. 0	40. 4	67	261. 9	52. 1
28	27. 5	5. 5	88	86. 3	17. 2	48	145. 2	28. 9	08	204. 0	40. 6	68	262. 9	52. 3
29	28. 4	5. 7	89	87. 3	17. 4	49	146. 1	29. 1	09	205. 0	40. 8	69	263. 8	52. 5
30	29. 4	5. 9	90	88. 3	17. 6	50	147. 1	29. 3	10	206. 0	41. 0	70	264. 8	52. 7
31	30. 4	6. 0	91	89. 3	17. 8	151	148. 1	29. 5	211	206. 9	41. 2	271	265. 8	52. 9
32	31. 4	6. 2	92	90. 2	17. 9	52	149. 1	29. 7	12	207. 9	41. 4	72	266. 8	53. 1
33	32. 4	6. 4	93	91. 2	18. 1	53	150. 1	29. 8	13	208. 9	41. 6	73	267. 8	53. 3
34	33. 3	6. 6	94	92. 2	18. 3	54	151. 0	30. 0	14	209. 9	41. 7	74	268. 7	53. 5
35	34. 3	6. 8	95	93. 2	18. 5	55	152. 0	30. 2	15	210. 9	41. 9	75	269. 7	53. 6
36	35. 3	7. 0	96	94. 2	18. 7	56	153. 0	30. 4	16	211. 8	42. 1	76	270. 7	53. 8
37	36. 3	7. 2	97	95. 1	18. 9	57	154. 0	30. 6	17	212. 8	42. 3	77	271. 7	54. 0
38	37. 3	7. 4	98	96. 1	19. 1	58	155. 0	30. 8	18	213. 8	42. 5	78	272. 7	54. 2
39	38. 3	7. 6	99	97. 1	19. 3	59	155. 9	31. 0	19	214. 8	42. 7	79	273. 6	54. 4
40	39. 2	7. 8	100	98. 1	19. 5	60	156. 9	31. 2	20	215. 8	42. 9	80	274. 6	54. 6
41	40. 2	8. 0	101	99. 1	19. 7	161	157. 9	31. 4	221	216. 8	43. 1	281	275. 6	54. 8
42	41. 2	8. 2	- 02	100. 0	19. 9	62	158. 9	31. 6	22	217. 7	43. 3	82	276. 6	55. 0
43	42. 2	8. 4	03	101. 0	20. 1	63	159. 9	31. 8	23	218. 7	43. 5	83	277. 6	55. 2
44	43. 2	8. 6	04	102. 0	20. 3	64	160. 8	32. 0	24	219. 7	43. 7	84	278. 5	55. 4
45	44. 1	8. 8	05	103. 0	20. 5	65	161. 8	32. 2	25	220. 7	43. 9	85	279. 5	55. 6
46	45. 1	9. 0	06	104. 0	20. 7	66	162. 8	32. 4	26	221. 7	44. 1	86	280. 5	55. 8
47	46. 1	9. 2	07	104. 9	20. 9	67	163. 8	32. 6	27	222. 6	44. 3	87	281. 5	56. 0
48	47. 1	9. 4	08	105. 9	21. 1	68	164. 8	32. 8	28	223. 6	44. 5	88	282. 5	56. 2
49	48. 1	9. 6	09	106. 9	21. 3	69	165. 8	33. 0	29	224. 6	44. 7	89	283. 4	56. 4
50	49. 0	9. 8	10	107. 9	21. 5	70	166. 7	33. 2	30	225. 6	44. 9	90	284. 4	56. 6
51	50. 0	9. 9	111	108. 9	21. 7	171	167. 7	33. 4	231	226. 6	45.1	291	285. 4	56. 8
52	51. 0	10. 1	12	109. 8	21. 9	72	168. 7	33. 6	32	227. 5	45.3	92	286. 4	57. 0
53	52. 0	10. 3	13	110. 8	22. 0	73	169. 7	33. 8	33	228. 5	45.5	93	287. 4	57. 2
54	53. 0	10. 5	14	111. 8	22. 2	74	170. 7	33. 9	34	229. 5	45.7	94	288. 4	57. 4
55	53. 9	10. 7	15	112. 8	22. 4	75	171. 6	34. 1	35	230. 5	45.8	95	289. 3	57. 6
56	54. 9	10. 9	16	113. 8	22. 6	76	172. 6	34. 3	36	231. 5	46.0	96	290. 3	57. 7
57	55. 9	11. 1	17	114. 8	22. 8	77	173. 6	34. 5	37	232. 4	46.2	97	291. 3	57. 9
58	56. 9	11. 3	18	115. 7	23. 0	78	174. 6	34. 7	38	233. 4	46.4	98	292. 3	58. 1
59	57. 9	11. 5	19	116. 7	23. 2	79	175. 6	34. 9	39	234. 4	46.6	99	293. 3	58. 3
60	58. 8	11. 7	20	117. 7	23. 4	80	176. 5	35. 1	40	235. 4	46.8	300	294. 2	58. 5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	E.	by N.		E. b	y S.		W. by	N.		W. by 8	S.	[For 7 pe	oints.

Difference of Latitude and Departure for 11 Points.

1	N	by E.			ice of I I. by W			_	re for E. ‡	r 14 Poir E		by W	4 W.	
7							,		Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.		Dep.
1	1.0	0.2	61	59.2	14.8	121	117.4	29.4	181	175.6	44.0	241	233.8	58.6
2	1.9	0.5	62	60.1	15. 1 15. 3	$\begin{array}{c} 22 \\ 23 \end{array}$	118.3 119.3	29. 6 29. 9	82 83	176.5 177.5	44. 2 44. 5	42 43	$\begin{vmatrix} 234.7 \\ 235.7 \end{vmatrix}$	58.8
3 4	2. 9 3. 9	$\begin{bmatrix} 0.7 \\ 1.0 \end{bmatrix}$	63 64	62.1	15.6	$\frac{23}{24}$	120.3	30.1	84	178.5	44.7	44	236.7	59.3
5	4.9	1.2	65	63. 1	15.8	25	121.3	30.4	85	179.5	45.0	45	237.7	59.5
6	5.8	1.5	66	64.0	16.0	26	122. 2	30.6	86	180.4	45.2	46	238.6	59.8
7	6.8	1.7	67	65.0	16.3	27 28	123. 2 124. 2	30.9	87 88	181. 4 182. 4	45. 4 45. 7	47 48	239. 6 240. 6	60.0
8 9	7.8 8.7	1.9	68 69	66. 0 66. 9	16.5 16.8	29	125.1	31. 3	89	183.3	45.9	49	241.5	60.5
10	9.7	2.4	70	67. 9	17.0	30	126.1	31.6	90	184.3	46.2	50	242.5	60.7
11	10.7	2.7	71	68.9	17.3	131	127.1	31.8	191	185.3	46.4	251	243.5	61.0
12	11. 6 12. 6	2. 9 3. 2	72	69. 8 70. 8	17.5 17.7	32	$128.0 \\ 129.0$	32. 1 32. 3	92 93	186. 2 187. 2	46. 7 46. 9	52 53	244. 4 245. 4	$\begin{vmatrix} 61.2 \\ 61.5 \end{vmatrix}$
13 14	13.6	3.4	73 74	71.8	18.0	* 34	130.0	32. 6	94	188. 2	47.1	54	246.4	61.7
15	14.6	3.6	75	72.8	18.2	35	131.0	32.8	95	189. 2	47.4	55	247.4	62.0
16	15.5	3.9	76	73. 7	18.5	36	131.9	33.0	96	190.1	47.6	56	248.3	62. 2
17 18	$16.5 \\ 17.5$	4.1	77 78	74. 7 75. 7	18. 7 19. 0	37 38	132. 9 133. 9	33. 3 33. 5	97 98	191. 1 192. 1	47.9 48.1	57 58	249. 3 250. 3	62. 4 62. 7
19	18.4	4.6	79	76.6	19. 2	39	134.8	33.8	99	193.0	48.4	59	251.2	62.9
20	19.4	4.9	80	77.6	19.4	40	135.8	34.0	200	194.0	48.6	60	252. 2	63. 2
21	20.4	5.1	81	78.6	19.7	141	136. 8	34.3	201	195.0	48.8	261	253.2	63. 4
22 23	21.3 22.3	5. 3 5. 6	82 83	79.5 80.5	19.9 20.2	42	137. 7 138. 7	34. 5 34. 7	02	195. 9 196. 9	49.1	62 63	254.1 255.1	63. 7
24	23.3	5.8	84	81.5	20. 2	44	139.7	35.0	04	197.9	49.6	64	256. 1	64.1
25	24.3	6.1	85	82.5	20.7	45	140.7	35. 2	05	198.9	49.8	65	257.1	64.4
26	25. 2	6.3	86	83.4	20.9	46	141.6	35.5	06	199.8	50.1	66	258.0	64.6
27 28	26. 2 27. 2	6.6	87 88	84. 4 85. 4	$\begin{array}{c} 21.1 \\ 21.4 \end{array}$	47	$142.6 \\ 143.6$	35. 7 36. 0	07 08	200.8	50. 3 50. 5	67 68	259. 0 260. 0	64. 9 65. 1
29	28. 1	7.0	89	86.3	21. 6	49	144.5	36. 2	09	202.7	50.8	69	260. 9	65.4
30	29. 1	7.3	90	87.3	21.9	50	145.5	36.4	10	203. 7	51.0	70	261.9	65.6
31	30. 1	7.5	91	88. 3 89. 2	22. 1 22. 4	151	146.5	36.7	$\begin{array}{c} 211 \\ 12 \end{array}$	204. 7 205. 6	51.3 51.5	271	262. 9 263. 8	65. 8 66. 1
32 33	$31.0 \\ 32.0$	7.8 8.0	92 93	90.2	22. 4	52 53	147. 4 148. 4	$\frac{36.9}{37.2}$	13	206.6	51.8	$\begin{array}{c c} 72 \\ 73 \end{array}$	264.8	66.3
34	33. 0	8.3	94	91.2	22.8	54	149.4	37.4	14	207.6	52.0	74	265.8	66.6
35	34.0	8.5	95	92.2	23.1	55	150.4	37.7	15	208.6	52. 2	75	266.8	66.8
36 37	34.9 35.9	8.7 9.0	96 97	93. 1 94. 1	23. 3 23. 6	56 57	151.3 152.3	37. 9 38. 1	16 17	209.5	52. 5 52. 7	76 77	$\begin{vmatrix} 267.7 \\ 268.7 \end{vmatrix}$	67.1
38	36. 9	9.2	98	95.1	23.8	58	153.3	38. 4	18	211.5	53.0	78	269.7	67.5
39	37.8	9.5	99	96.0	24.1	59	154.2	38.6	19	212.4	53.2	79	270.6	67.8
40	38.8	9.7	100	97.0	24.3	60	155. 2	38.9	20	213.4	53. 5	80	271.6	68.0
$\begin{array}{c} 41 \\ 42 \end{array}$	39. 8 40. 7	10. 0 10. 2	101 02	98. 0 98. 9	$24.5 \\ 24.8$	$\begin{array}{c c} 161 \\ 62 \end{array}$	156. 2 157. 1	$ \begin{array}{c c} 39.1 \\ 39.4 \end{array} $	$\begin{array}{c} 221 \\ 22 \end{array}$	214. 4 215. 3	53. 7 53. 9	$\frac{281}{82}$	272. 6 273. 5	68. 3 68. 5
43	41.7	10.4	03	99.9	25.0	63	158.1	39.6	23	216.3	54. 2	83	274.5	68.8
44	42.7	10.7	04	100.9	25.3	64	159.1	39.8	24	217.3	54.4	84	275.5	69.0
45	43.7	10.9	05	101.9	25.5	65	160.1	40.1	25	218.3	54.7	85	277.5	69. 2
46	44. 6 45. 6	11. 2 11. 4	06 07	102. 8 103. 8	25.8 26.0	66 67	$161.0 \\ 162.0$	40.3	26 27	219.2 220.2	54. 9 55. 2	86 87	277. 4 278. 4	69.5
48	46.6	11.7	08	104.8	26. 2	68	163.0	40.8	28	221.2	55.4	88	279.4	70.0
49	47.5	11.9	09	105.7	26.5	69	163.9	41.1	29	222.1	55.6	89	280.3	70.2
50	48.5	12.1	10	106.7	26.7	70	164.9	41.3	30	223.1	55.9	90	281.3	70.5
51 52	49. 5 50. 4	12. 4 12. 6	111	107.7	27. 0 27. 2	$\frac{171}{72}$	165. 9 166. 8	41.5	$\frac{231}{32}$	224. 1 225. 0	56. 1 56. 4	$\frac{291}{92}$	282. 3 283. 2	70. 7 71. 0
53	51.4	12. 9	13	109.6	27.5	73	167.8	42.0	33	226.0	56.6	93	284. 2	71. 2
54	52.4	13.1	14	110.6	27.7	74	168.8	42.3	34	227.0	56.9	94	285.2	71.4
55 56	53.4	13.4	15	111.6	27.9	. 75	169.8	42.5	35	228.0	57.1	95	286.2	71.7
56 57	54. 3 55. 3	13.6 13.8	16 17	112.5 113.5	28. 2 28. 4	76 77	170.7 171.7	42. 8 43. 0	36 37	228. 9 229. 9	57.3 57.6	96 97	287. 1 288. 1	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
58	56.3	14.1	18	114.5	28.7	78	172.7	43.3	38	230. 9	57.8	98	289. 1	72.4
59	57.2	14.3	19	115.4	28.9	79	173.6	43.5	39	231.8	58.1	99	290.9	72.7
60	58. 2	14.6	20	116.4	29. 2	80	174.6	43.7	40	232.8	58.3	300	291.0	72.9
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

WNW. 3 W.

WSW. 3 W.

[For 63 Points.

ENE. 3 E.

ESE. 3 E.

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TABLE 1.

Difference of Latitude and Departure for $1\frac{1}{2}$ Points.

N. by E. $\frac{1}{2}$ E.

N. by W. $\frac{1}{2}$ W.

S. by E. ½ E.

S. by W. ½ W.

Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.3	61	58.4	17.7	121	115.8	35. 1	181	173. 2	52.5	241	230. 6	70.0
2	1.9	0.6	62	59.3	18.0	22	116.7	35.4	82	174.2	52.8	42	231. 6	70.2
3 4	$\frac{2.9}{3.8}$	$0.9 \\ 1.2$	63 64	60. 3 61. 2	18.3 18.6	$\begin{array}{c} 23 \\ 24 \end{array}$	117. 7 118. 7	35. 7 36. 0	83 84	$175.1 \\ 176.1$	53. 1 53. 4	43 44	$232.5 \\ 233.5$	70. 5 70. 8
5	4.8	1.5	65	62. 2	18.9	25	119.6	36.3	85	177.0	53. 7	45	234. 5	71.1
6	5.7	1.7	66	63.2	19.2	26	120.6	36.6	86	178.0	54.0	46	235.4	71.4
7	6. 7	2.0	67	64.1	19.4	27	121.5	36.9	87	178. 9 179. 9	54.3	47 48	236.4 237.3	71. 7 72. 0
8 9	7. 7 8. 6	$\begin{bmatrix} 2.3 \\ 2.6 \end{bmatrix}$	68 69	65. 1 66. 0	19. 7 20. 0	28	122.5 123.4	37. 2 37. 4	88 89	180.9	54. 6 54. 9	49	238.3	72. 3
10	9.6	2.9	70	67. 0	20. 3	30	124.4	37. 7	90	181.8	55. 2	50	239. 2	72.6
11	10.5	3.2	71	67. 9	20.6	131	125.4	38.0	191	182.8	55.4	251	240. 2	72. 9
12 13	$\begin{array}{c} 11.5 \\ 12.4 \end{array}$	3. 5 3. 8	72 73	68. 9 69. 9	20.9 21.2	32 33	126.3 127.3	38. 3 38. 6	92 93	183. 7 184. 7	55. 7 56. 0	52 53	241.1 242.1	73. 2 73. 4
14	13.4	4.1	74	70.8	$\frac{21.2}{21.5}$	34	127.3 128.2	38.9	94	185. 6	56.3	54	243. 1	73. 7
15	14. 4	4.4	75	71.8	21.8	35	129.2	39. 2	95	186.6	56.6	55	244.0	74.0
16	15.3	4.6	76	72.7	22.1	36	130. 1	39.5	96	187.6	56. 9	56	245.0	74.3
17 18	$16.3 \\ 17.2$	4. 9 5. 2	77 78	73. 7 74. 6	$22.4 \\ 22.6$	37 38	131. 1 132. 1	39.8 40.1	97 98	188. 5 189. 5	57. 2 57. 5	57 58	$245.9 \\ 246.9$	74. 6 74. 9
19	18. 2	5.5	79	75. 6	22. 9	39	133. 0	40.3	99	190. 4	57.8	59	247.8	75. 2
20	19.1	5.8	80	76.6	23. 2	40	134.0	40.6	200	191.4	58.1	_60	248.8	75.5
21	20. 1	6.1	81	77.5	23.5	141	134.9	40.9	201	192.3	58.3	261	249.8	75.8
22 23	$21.1 \\ 22.0$	6. 4 6. 7	82 83	78.5 79.4	$23.8 \\ 24.1$	42 43	135. 9 136. 8	$41.2 \\ 41.5$	02 03	193.3 194.3	58.6 58.9	62 63	250.7 251.7	76. 1 76. 3
24	23. 0	7.0	84	80.4	24. 4	44	137.8	41.8	04	195. 2	59. 2	64	252.6	76.6
25	23.9	7.3	85	81.3	24.7	45	138.8	42.1	05	196. 2	59.5	65	253.6	76.9
26 27	24.9	7.5	86	82. 3 83. 3	25.0	46	139. 7 140. 7	42.4	06	197.1	59.8 60.1	66 67	254.5 255.5	77. 2 77. 5
28	25. 8 26. 8	7.8 8.1	87 88	84. 2	25.3 25.5	47 48	140.7	42. 7 43. 0	07 08	198. 1 199. 0	60. 4	68	256.5	77.8
29	27.8	8.4	89	85. 2	25.8	49	142.6	43.3	09	200.0	60.7	69	257.4	78.1
30	28.7	8.7	90	86.1	26. 1	_ 50_	143.5	43.5	10	201.0	61.0	_ 70	258.4	78.4
31 32	29. 7 30. 6	$9.0 \\ 9.3$	91 92	87.1	26. 4 26. 7	151	144.5	43. 8 44. 1	211	201. 9 202. 9	61.3	$\begin{array}{c} 271 \\ 72 \end{array}$	259. 3 260. 3	78. 7 79. 0
33	31.6	9. 5	93	88. 0 89. 0	27.0	52 53	145. 5 146. 4	44. 1	$\begin{array}{c} 12 \\ 13 \end{array}$	202. 9	61. 5 61. 8	73	261. 2	79.0
34	32.5	9.9	94	90.0	27.3	54	147.4	44.7	14	204.8	62.1	74	262. 2	79. 2 79. 5
35	33.5	10.2	95	90.9	27.6	55	148.3	45.0	15	205.7	62.4	75	263.2	79.8
36 37	34. 4 35. 4	10.5 10.7	96 97	91. 9 92. 8	27. 9 28. 2	56 57	149. 3 150. 2	45. 3 45. 6	16 17	206. 7 207. 7	62. 7 63. 0	.76 .77	264. 1 265. 1	80. 1 80. 4
38	36.4	11.0	98	93.8	28.4	58	151. 2	45. 9	18	208.6	63.3	78	266.0	80.7
39	37.3	11.3	99	94.7	28. 7	59	152. 2	46. 2	19	209.6	63.6	79	267.0	81.0
40	$\frac{38.3}{39.2}$	11.6	100	95.7	29.0	60	153.1	46. 4	20	210.5	63.9	80	267. 9	81.3
41 42	40. 2	11. 9 12. 2	$\begin{array}{c} 101 \\ 02 \end{array}$	96. 7 97. 6	29.3 29.6	161 62	154. 1 155. 0	46. 7	$\begin{array}{c} 221 \\ 22 \end{array}$	211.5 212.4	64. 2 64. 4	281 82	268. 9 269. 9	81.0
43	41.1	12.5	03	98.6	29.9	63	156.0	47.3	23	213.4	64. 7	83	270.8	82. 2
44	42.1	12.8	04	99.5	30. 2	64	156.9	47.6	24	214.4	65.0	84	271.8	82.4
45 46	43. 1 44. 0	13. 1 13. 4	05 06	100.5 101.4	30. 5	65 66	157. 9 158. 9	47. 9 48. 2	$\frac{25}{26}$	215. 3 216. 3	65. 3 65. 6	85 86	272. 7 273. 7	82. 7 83. 0
47	45.0	13.6	07	102.4	31. 1	67	159.8	48.5	27	217. 2	65. 9	87	274.6	83.3
48	45.9	13.9	08	103. 3	31. 4	68	160.8	48.8	28	218.2	66.2	88	275.6	83.6
49 50	46.9	14.2	09	104.3	31.6	69	161.7	49.1	29	219.1	66.5	89	276.6	83.9
51	$\frac{47.8}{48.8}$	14.5	111	$\frac{105.3}{106.2}$	$\frac{31.9}{32.2}$	$\frac{70}{171}$	$\frac{162.7}{163.6}$	49. 3	$\frac{30}{231}$	$\frac{220.1}{221.1}$	$\frac{66.8}{67.1}$	$\frac{90}{291}$	$\frac{277.5}{278.5}$	84.2
52	49.8	15.1	12	107. 2	32.5	72	164.6	49.9	32	222.0	67.3	92	279.4	84.8
53	50.7	15.4	13	108.1	32.8	73	165.6	50.2	33	223.0	67.6	93	280.4	85.1
54 55	51.7 52.6	15. 7 16. 0	14 15	109.1 110.0	33.1	74 75	166.5	50.5	34 35	223. 9 224. 9	67. 9	94 95	281. 3 282. 3	85. 3 85. 6
56 56	53.6	16. 3	16	111.0	33. 7	76	167. 5 168. 4	51.1	36	224. 9	68.5	96	283.3	85. 9
57	54.5	16.5	17	112.0	34.0	77	169.4	51.4	37	226.8	68.8	97	284. 2	86. 2
58	55.5	16.8	18	112.9	34.3	78	170.3	51.7	38	227.8	69. 1	98	285. 2	86.5
59 60	56.5 57.4	17.1 17.4	19 20	113.9 114.8	34. 5 34. 8	79 80	171.3 172.2	52. 0 52. 3	39 40	228. 7 229. 7	69. 4	99 300	$286.1 \\ 287.1$	86. 8 87. 1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	1	!			Dat.		1	1	·	1				
ENE. ½ E. ESE. ½ E. WNW. ½ W. WSW. ½ W. [For 6½ Points.														

Difference of Latitude and Departure for 13 Points.

	N. by E. \(\frac{3}{4}\) E. N. by W. \(\frac{3}{4}\) W. S. by E. \(\frac{3}{4}\) E. S. by W. \(\frac{3}{4}\) W. Dist. Lat. Dep. Dist. Dep. Dep. Dist. Dep. Dep. Dep. Dep. Dep. Dep. Dep. Dep													
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.3	61	57.4	20.6	121	113.9	40.8	181	170.4	61.0	241	226. 9	81.2
$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$	1.9	0.7	62	58. 4	20.9	22	114.9	41.1	82	$171.4 \\ 172.3$	$61.3 \\ 61.7$	42 43	227.9 228.8	81. 5 81. 9
4	2.8 3.8	$1.0 \\ 1.3$	63 64	59. 3 60. 3	21. 2 21. 6	23 24	115. 8 116. 8	41.4 41.8	83 84	173. 2	62. 0	44	$\frac{220.0}{229.7}$	82. 2
5	4.7	1.7	65	61.2	21. 9 22. 2	25	117.7	42.1	85	174. 2	62. 3	45	230.7	82.5
6	5.6	2.0	66	62.1	22. 2	26	118.6	42.4	86	175.1	62.7	46 47	$231.6 \\ 232.6$	82. 9
7 8	$\begin{array}{c} 6.6 \\ 7.5 \end{array}$	$\begin{array}{c} 2.4 \\ 2.7 \end{array}$	67 68	63. 1 64. 0	22. 6 22. 9	27 28	119. 6 120. 5	42.8 43.1	87 88	176.1 177.0	63. 0 63. 3	48	233.5	83. 2 83. 5
9	8.5	3.0	69	65. 0	23.2	29	121.5	43.5	89	178.0	63.7	49	234.4	83.9
10	9.4	3.4	70	65. 9	23.6	30	122.4	43.8	90	178.9	64.0	50	235.4	84.2
$\begin{array}{c c} 11 \\ 12 \end{array}$	10. 4 11. 3	3. 7 4. 0	$\begin{array}{c c} 71 \\ 72 \end{array}$	66. 8	$23.9 \\ 24.3$	131 32	$123.3 \\ 124.3$	$\frac{44.1}{44.5}$	191 92	179. 8 180. 8	$64.3 \\ 64.7$	$\begin{array}{c} 251 \\ 52 \end{array}$	236. 3 237. 3	84. 6 84. 9
13	12. 2	4.4	73	68. 7	24.6	33	125. 2	44.8	93	181.7	65.0	53	238. 2	85. 2
14	13. 2	4.7	74	69.7	24.9	34	126. 2	45.1	94	182.7	65. 4	54	239. 2	85. 6
15 16	14. 1 15. 1	5. 1 5. 4	75 76	70.6 71.6	25. 3 25. 6	35 36	$127.1 \\ 128.0$	45. 5 45. 8	95 96	183. 6 184. 5	65. 7 66. 0	55 56	$240.1 \\ 241.0$	85. 9 86. 2
17	16. 0	5.7	77	72. 5	25. 9	37	129.0	46.2	97	185. 5	66. 4	57	242.0	86.6
18	16.9	6.1	78	73.4	26. 3	38	129.9	46.5	98	186. 4	66.7	58	242.9	86. 9
19 20	17. 9 18. 8	6. 4 6. 7	79 80	74. 4 75. 3	$26.6 \\ 27.0$	39 40	130. 9 131. 8	$46.8 \\ 47.2$	$\begin{array}{c} 99 \\ 200 \end{array}$	$187.4 \\ 188.3$	$67.0 \\ 67.4$	59 60	243.9 244.8	87. 3 87. 6
$\frac{20}{21}$	19.8	$\frac{0.7}{7.1}$	81	$\frac{76.3}{76.3}$	27. 3	141	132.8	47.5	201	189.3	$\frac{67.7}{67.7}$	261	$\frac{245.7}{245.7}$	87.9
22	20.7	7.4	82	77.2	27.6	42	133.7	47.8	02	190.2	68.1	62	246.7	88. 3
23	21.7	7.7	83	78. 1	28.0	43	134.6	48.2	03	191.1	68.4	63	247. 6 248. 6	88.6
$\begin{array}{c c}24\\25\end{array}$	$22.6 \\ 23.5$	8. 1 8. 4	84 85	79. 1 80. 0	28. 3 28. 6	44 45	135. 6 136. 5	48.5 48.8	04 05	192. 1 193. 0	68. 7 69. 1	$\frac{64}{65}$	249.5	88. 9 89. 3
26	24.5	8.8	86	81.0	29.0	46	137.5	49. 2	06	194.0	69. 4	66	250.5	89.6
27	25.4	9.1	87	81. 9	29.3	47	138.4	49.5	07	194.9	69.7	67	251.4	89.9
28 29	$ \begin{array}{c c} 26.4 \\ 27.3 \end{array} $	9.4 9.8	88 89	82. 9 83. 8	29. 6 30. 0	48 49	139.3 140.3	49. 9 50. 2	08 09	195. 8 196. 8	70.1	68 69	252. 3 253. 3	90. 3 90. 6
30	28. 2	10.1	90	84. 7	30. 3	50	141. 2	50.5	10	197.7	70. 7	70	254. 2	91.0
31	29.2	10.4	91	85.7	30.7	151	142. 2	50.9	211	198.7	71.1	271	255. 2	91.3
32 33	30. 1 31. 1	10.8 11.1	92 93	86. 6 87. 6	31. 0 31. 3	52 53	143. 1 144. 1	51. 2 51. 5	12 13	199. 6 200. 5	71.4	72 73	256. 1 257. 0	91. 6 92. 0
34	32. 0	11.5	94	88. 5	31. 7	54	145.0	51.9	14	201.5	72.1	74	258.0	92.3
35	33.0	11.8	95	89.4	32.0	55	145.9	52. 2	15	202. 4	72. 4	75	258.9	92.6
36 37	33. 9 34. 8	$12.1 \\ 12.5$	96 97	90. 4 91. 3	32. 3 32. 7	56 57	146. 9 147. 8	52.6 52.9	16 17	203. 4 204. 3	72. 8 73. 1	76 77	259. 9 260. 8	93. 0 93. 3
38	35.8	12.8	98	92.3	33.0	58	148.8	53. 2	18	205. 3	73. 4	78	261.7	93. 7
39	36.7	13.1	99	93. 2	33. 4	59	149.7	53.6	19	206. 2	73.8	79	262. 7	94.0
40	$\frac{37.7}{38.6}$	13.5	$\frac{100}{101}$	$\frac{94.2}{95.1}$	$\frac{33.7}{34.0}$	$\frac{60}{161}$	150. 6 151. 6	$\frac{53.9}{54.2}$	$\frac{20}{221}$	$\frac{207.1}{208.1}$	$\frac{74.1}{74.5}$	$\frac{80}{281}$	$\frac{263.6}{264.6}$	$\frac{94.3}{94.7}$
41 42	39.5	13.8 14.1	02	96. 0	34. 4	62	152.5	54.6	221	209. 0	74.8	82	265.5	95. 0
43	40.5	14.5	03	97.0	34.7	63	153.5	54.9	23	210.0	75.1	83	266.5	95.3
44 45	41. 4 42. 4	14.8 15.2	04	97. 9 98. 9	35. 0 35. 4	64 65	154. 4 155. 4	55. 2 55. 6	24 25	210.9 211.8	75.5 75.8	84 85	267. 4 268. 3	95. 7 96. 0
46	43. 3	15. 5	05 06	99.8	35. 7	66	156. 3	55. 9	26	212.8	76.1	86	269.3	96. 4
47	44.3	15.8	07	100.7	36.0	67	157.2	56.3	27	213.7	76.5	87	270.2	96.7
48 49	45. 2 46. 1	16. 2 16. 5	08 09	101. 7 102. 6	36. 4 36. 7	68 69	158. 2 159. 1	56. 6 56. 9	28 29	214. 7 215. 6	76.8 77.1	88 89	271. 2 272. 1	97. 0 97. 4
50	47.1	16.8	10	103.6	37.1	70	160.1	57.3	30	216.6	77.5	90	273.0	97.7
51	48.0	17. 2	111	104.5	37.4	171	161.0	57.6	231	217.5	77.8	291	274.0	98.0
52	49.0	17.5	12	105.5	37.7	72	161.9	57.9	32	218.4	78. 2	92	274.9	98.4
53 54	49. 9 50. 8	17. 9 18. 2	13 14	106. 4 107. 3	38. 1	73 74	162. 9 163. 8	58. 3 58. 6	33 34	219. 4 220. 3	78.5 78.8	93 94	275. 9 276. 8	98.7
55	51.8	18.5	15	108.3	38. 7	75	164.8	59.0	35	221.3	79.2	95	277.8	99.4
56	52.7	18.9	16	109. 2 110. 2	39.1	76	165.7	59.3	36 37	222. 2 223. 1	79.5	96 97	278. 7 279. 6	99.7
57 58	53. 7 54. 6	19. 2 19. 5	17 18	110. 2	39. 4 39. 8	77 78	166. 7 167. 6	59. 6 60. 0	38	223. 1	79.8	98	280.6	100.1
59	55.6	19.9	19	112.0	40.1	79	168.5	60.3	39	225.0	80.5	99	281.5	100.7
60	56.5	20.2	20	113.0	40.4	80	169.5	60.6	40	226.0	80.9	300	282. 5	101.1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	ENE.	E.]	ESE. 4 1	E.	v	VNW. 4	W.	7	WSW. 4	W.	[F	or 61 Pc	ints.

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TABLE 1.

Difference of Latitude and Departure for 2 Points.

NNE. NNW.								S	SE.		SS	W.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1 2 3 4 5 6 7 8 9	0.9 1.8 2.8 3.7 4.6 5.5 6.5 7.4 8.3 9.2	0. 4 0. 8 1. 1 1. 5 1. 9 2. 3 2. 7 3. 1 3. 4 3. 8	61 62 63 64 65 66 67 68 69 70	56. 4 57. 3 58. 2 59. 1 60. 1 61. 0 61. 9 62. 8 63. 7 64. 7	23. 3 23. 7 24. 1 24. 5 24. 9 25. 3 25. 6 26. 0 26. 4 26. 8	121 22 23 24 25 26 27 28 29 30	111. 8 112. 7 113. 6 114. 6 115. 5 116. 4 117. 3 118. 3 119. 2 120. 1	46. 3 46. 7 47. 1 47. 5 47. 8 48. 2 48. 6 49. 0 49. 4 49. 7	181 82 83 84 85 86 87 88 89	167. 2 168. 1 169. 1 170. 0 170. 9 171. 8 172. 8 173. 7 174. 6 175. 5	69. 3 69. 6 70. 0 70. 4 70. 8 71. 2 71. 6 71. 9 72. 3 72. 7	241 42 43 44 45 46 47 48 49 50	222. 7 223. 6 224. 5 225. 4 226. 4 227. 3 228. 2 229. 1 230. 0 231. 0	92. 2 92. 6 93. 0 93. 4 93. 8 94. 1 94. 5 94. 9 95. 3 95. 7
11 12 13 14 15 16 17 18 19 20	10. 2 11. 1 12. 0 12. 9 13. 9 14. 8 15. 7 16. 6 17. 6 18. 5	4. 2 4. 6 5. 0 5. 4 5. 7 6. 1 6. 5 6. 9 7. 3 7. 7	71 72 73 74 75 76 77 78 79 80	65. 6 66. 5 67. 4 68. 4 69. 3 70. 2 71. 1 72. 1 73. 0 73. 9	27. 2 27. 6 27. 9 28. 3 28. 7 29. 1 29. 5 29. 8 30. 2 30. 6	131 32 33 34 35 36 37 38 39 40	121. 0 122. 0 122. 9 123. 8 124. 7 125. 6 126. 6 127. 5 128. 4 129. 3	50. 1 50. 5 50. 9 51. 3 51. 7 52. 0 52. 4 52. 8 53. 2 53. 6	191 92 93 94 95 96 97 98 99 200	176. 5 177. 4 178. 3 179. 2 180. 2 181. 1 182. 0 182. 9 183. 9 184. 8	73. 1 73. 5 73. 9 74. 2 74. 6 75. 0 75. 4 75. 8 76. 2 76. 5	251 52 53 54 55 56 57 58 59 60	231. 9 232. 8 233. 7 234. 7 235. 6 236. 5 237. 4 238. 4 239. 3 240. 2	96. 1 96. 4 96. 8 97. 2 97. 6 98. 0 98. 3 98. 7 99. 1 99. 5
21 22 23 24 25 26 27 28 29 30	19. 4 20. 3 21. 2 22. 2 23. 1 24. 0 24. 9 25. 9 26. 8 27. 7	8. 0 8. 4 8. 8 9. 2 9. 6 9. 9 10. 3 10. 7 11. 1 11. 5	81 82 83 84 85 86 87 88 89 90	74. 8 75. 8 76. 7 77. 6 78. 5 79. 5 80. 4 81. 3 82. 2 83. 1	31. 0 31. 4 31. 8 32. 1 32. 5 32. 9 33. 3 33. 7 34. 1 34. 4	141 42 43 44 45 46 47 48 49 50	130. 3 131. 2 132. 1 133. 0 134. 0 134. 9 135. 8 136. 7 137. 7 138. 6	54. 0 54. 3 54. 7 55. 1 55. 5 56. 3 56. 6 57. 0 57. 4	201 02 03 04 05 06 07 08 09 10	185. 7 186. 6 187. 5 188. 5 189. 4 190. 3 191. 2 192. 2 193. 1 194. 0	76. 9 77. 3 77. 7 78. 1 78. 5 78. 8 79. 2 79. 6 80. 0 80. 4	261 62 63 64 65 66 67 68 69 70	241. 1 242. 1 243. 0 243. 9 244. 8 245. 8 246. 7 247. 6 248. 5 249. 4	99. 9 100. 3 100. 6 101. 0 101. 4 101. 8 102. 2 102. 6 102. 9 103. 3
31 32 33 34 35 36 37 38 39 40	28. 6 29. 6 30. 5 31. 4 32. 3 33. 3 34. 2 35. 1 36. 0 37. 0	11. 9 12. 2 12. 6 13. 0 13. 4 13. 8 14. 2 14. 5 14. 9 15. 3	91 92 93 94 95 96 97 98 99 100	84. 1 85. 0 85. 9 86. 8 87. 8 88. 7 89. 6 90. 5 91. 5 92. 4	34.8 35.2 35.6 36.0 36.4 36.7 37.1 37.5 37.9 38.3	151 52 53 54 55 56 57 58 59 60	139. 5 140. 4 141. 4 142. 3 143. 2 144. 1 145. 0 146. 0 146. 9 147. 8	57. 8 58. 2 58. 6 58. 9 59. 3 59. 7 60. 1 60. 5 60. 8 61. 2	211 12 13 14 15 16 17 18 19 20	194. 9 195. 9 196. 8 197. 7 198. 6 199. 6 200. 5 201. 4 202. 3 203. 3	80. 7 81. 1 81. 5 81. 9 82. 3 82. 7 83. 0 83. 4 83. 8 84. 2	271 72 73 74 75 76 77 78 79 80	250. 4 251. 3 252. 2 253. 1 254. 1 255. 0 255. 9 256. 8 257. 8 258. 7	103. 7 104. 1 104. 5 104. 9 105. 2 105. 6 106. 0 106. 4 106. 8 107. 2
41 42 43 44 45 46 47 48 49 50	37. 9 38. 8 39. 7 40. 7 41. 6 42. 5 43. 4 44. 3 45. 3 46. 2	15. 7 16. 1 16. 5 16. 8 17. 2 17. 6 18. 0 18. 4 18. 8 19. 1	101 02 03 04 05 06 07 08 09 10	93. 3 94. 2 95. 2 96. 1 97. 0 97. 9 98. 9 99. 8 100. 7 101. 6	38. 7 39. 0 39. 4 39. 8 40. 2 40. 6 40. 9 41. 3 41. 7 42. 1	161 62 63 64 65 66 67 68 69 70	148. 7 149. 7 150. 6 151. 5 152. 4 153. 4 154. 3 155. 2 156. 1 157. 1	61. 6 62. 0 62. 4 62. 8 63. 1 63. 5 63. 9 64. 3 64. 7 65. 1	221 22 23 24 25 26 27 28 29 30	204. 2 205. 1 206. 0 206. 9 207. 9 208. 8 209. 7 210. 6 211. 6 212. 5	84. 6 85. 0 85. 3 85. 7 86. 1 86. 5 86. 9 87. 3 87. 6 88. 0	281 82 83 84 85 86 87 88 89 90	259. 6 260. 5 261. 5 262. 4 263. 3 264. 2 265. 2 266. 1 267. 0 267. 9	107. 5 107. 9 108. 3 108. 7 109. 1 109. 4 109. 8 110. 2 110. 6 111. 0
51 52 53 54 55 56 57 58 59 60	47. 1 48. 0 49. 0 49. 9 50. 8 51. 7 52. 7 53. 6 54. 5 55. 4	19. 5 19. 9 20. 3 20. 7 21. 0 21. 4 21. 8 22. 2 22. 6 23. 0	111 12 13 14 15 16 17 18 19 20	102. 6 103. 5 104. 4 105. 3 106. 2 107. 2 108. 1 109. 0 109. 9 110. 9	42. 5 42. 9 43. 2 43. 6 44. 0 44. 4 44. 8 45. 2 45. 5 45. 9	171 72 73 74 75 76 77 78 79 80	158. 0 158. 9 159. 8 160. 8 161. 7 162. 6 163. 5 164. 5 165. 4 166. 3	65. 4 65. 8 66. 2 66. 6 67. 0 67. 4 67. 7 68. 1 68. 5 68. 9	231 32 33 34 35 36 37 38 39 40	213. 4 214. 3 215. 3 216. 2 217. 1 218. 0 219. 0 219. 9 220. 8 221. 7	88. 4 88. 8 89. 2 89. 5 89. 9 90. 3 90. 7 91. 1 91. 5 91. 8	291 92 93 94 95 96 97 98 99 300	268. 8 269. 8 270. 7 271. 6 272. 5 273. 5 274. 4 275. 3 276. 2 277. 2	111. 4 111. 7 112. 1 112. 5 112. 9 113. 3 113. 7 114. 0 114. 4 114. 8
Dist.	Dep. ENE.	Lat.	Dist.	Dep. ESE.	Lat,	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
			-									-		

Difference of Latitude and Departure for 2½ Points.

NNW, ½ W. SSE, ½ E. SSW, ½ W.

		NNE	. ½ E.		NNW	. 1 W	•	SSE.	₹ E.		SSW.	1 W.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.4	61	55.1	26. 1	121	109.4	51.7	181	163.6	77.4	241	217.9	103.0
$\frac{2}{3}$	$\frac{1.8}{2.7}$	0.9 1.3	62 63	56. 0 57. 0	26. 5 26. 9	22 23	$110.3 \\ 111.2$	$52.2 \\ 52.6$	82 83	164. 5 165. 4	77.8 78.2	42 43	218.8 219.7	103. 5 103. 9
4	3.6	1.7	64	57.9	27.4	24	112.1	53.0	84	166. 3	78.7	44	220.6	104.3
5	4.5	2.1	65	58.8	27.8	25	113.0	53.4	85	167.2	79.1	45	221.5	104.8
6	5.4	2. 6 3. 0	66	59.7	28. 2 28. 6	26 27	113.9	53.9	86	168.1	79.5	46 47	222.4 223.3	105. 2
7 8	$6.3 \\ 7.2$	3.4	67 68	60. 6 61. 5	29.1	28	114.8 115.7	54.3 54.7	87 88	169. 0 169. 9	80. 0 80. 4	48	224.2	105.6 106.0
9	8. 1	3.8	69	62.4	29.5	29	116.6	55. 2	89	170.9	80.8	49	225.1	106.5
10	9.0	4.3	70	63.3	29.9	30	117.5	55.6	90	171.8	81.2	50	226.0	106.9
11 12	9. 9 10. 8	4.7 5.1	71 72	64. 2 65. 1	30. 4 30. 8	131 32	118. 4 119. 3	56. 0 56. 4	191 92	172.7 173.6	81. 7 82. 1	$\begin{array}{c} 251 \\ 52 \end{array}$	226.9 227.8	107.3 107.7
13	11.8	5.6	73	66. 0	31.2	33	120.2	56. 9	93	174.5	82.5	53	228.7	108. 2
14	12.7	6.0	74	66.9	31.6	34	121.1	57.3	94	175.4	82.9	54	229.6	108.6
15	13.6	6.4	75 70	67.8	$32.1 \\ 32.5$	35	122.0	57.7	95	176.3	83.4	55	230.5	109.0
16 17	14. 5 15. 4	6. 8 7. 3	76 77	68. 7 69. 6	32. 9	36 37	122.9 123.8	58. 1 58. 6	96 97	177.2 178.1	83.8	56 57	231.4	109. 5 109. 9 110. 3
18	16. 3	7.7	78	70.5	33.3	38	124.8	59.0	98	179.0	84. 2 84. 7	58	232. 3 233. 2	110.3
19	17. 2	8.1	79	71.4	33.8	39	125.7	59.4	99	179.9	85.1	59	234.1	110.7
20	18.1	8.6	80	$\frac{72.3}{73.2}$	34.2	40	126.6	$\frac{59.9}{60.3}$	200	$\frac{180.8}{181.7}$	85.5	60	235.0	111.2
$\begin{array}{c} 21 \\ 22 \end{array}$	19. 0 19. 9	9. 0 9. 4	81 82	74. 1	34. 6 35. 1	$\begin{array}{c} 141 \\ 42 \end{array}$	127.5 128.4	60. 7	201 02	181. 7	85. 9 86. 4	$\begin{array}{c} 261 \\ 62 \end{array}$	235. 9 236. 8	111.6
23	20.8	9.8	83	75.0	$35.1 \\ 35.5$	43	129.3	61.1	03	183.5	86.8	63	237.7	112. 0 112. 4
24	21.7	10.3	84	75.9	35.9 36.3	44	130. 2	61.6	04	184.4	87.2	64	238.7	112.9
25 26	$22.6 \\ 23.5$	10.7 11.1	85 86	76.8 77.7	36. 8	45 46	131. 1 132. 0	62. 0 62. 4	05 06	185.3 186.2	87. 6 88. 1	65 66	239.6 240.5	113.3 113.7
27	24. 4	11.5	87	78.6	37.2	47	132. 9	62.9	07	187.1	88.5	67	241.4	114.2
28	25.3	12.0	88	79.6	37.6	48	133.8	63.3	08	188.0	88.9	68	242.3	114. 2 114. 6 115. 0
29 30	26. 2 27. 1	12.4 12.8	89 90	$80.5 \\ 81.4$	38. 1 38. 5	49 50	134.7 135.6	63.7 64.1	09 10	188. 9 189. 8	89. 4 89. 8	69 70	243. 2 244. 1	115. 0 115. 4
31	28.0	13.3	$\frac{-30}{91}$	82.3	38.9	$\frac{50}{151}$	$\frac{136.5}{136.5}$	64.6	211	190.7	90.2	271	245. 0	115. 9
32	28.9	13.7	92	83. 2	39.3	52	137.4	65.0	12	191.6	90.6	72	245.9	116.3
33 34	29.8	14.1	93	84.1	39.8	53	138.3	65.4	13	192.5	91. 1 91. 5	73 74	246.8	116.7 117.2
35	$30.7 \\ 31.6$	14.5 15.0	94 95	85. 0 85. 9	$40.2 \\ 40.6$	54 55	139.2 140.1	65. 8 66. 3	14 15	193.5 194.4	91. 9	75	247. 7 248. 6	117. 6
36	32.5	15.4	96	86.8	41.0	56	141.0	66.7	16	195.3	92.4	76	249.5	118.0
37	33.4	15.8	97	87.7	41.5	57	141.9	67.1	17	196.2	92.8	77	250.4	118. 4 118. 9
38 39	34. 4 35. 3	16. 2 16. 7	98 99	88. 6 89. 5	41.9 42.3	58 59	$142.8 \\ 143.7$	67. 6 68. 0	18 19	197. 1 198. 0	93. 2 93. 6	78 79	251.3 252.2	118.9
40	36. 2	17.1	100	90.4	42.8	60	144.6	68.4	20	198.9	94.1	80	253. 1	119.7
41	37. 1	17.5	101	91.3	43. 2	161	145.5	68.8	221	199.8	94.5	281	254.0	120.1
42 43	38. 0 38. 9	18. 0 18. 4	$02 \\ 03$	92.2 93.1	43.6 44.0	62 63	$146.4 \\ 147.4$	69.3 69.7	22 23	200.7 201.6	94.9 95.3	82 83	254. 9 255. 8	120.6 121.0
44	39.8	18. 8	04	94.0	44.5	64	148.3	70.1	24	202.5	95.8	84	256.7	121. 4
45	40.7	19.2	05	94.9	44.9	65	149.2	70.5	25	203.4	96.2	85	257.6	121.9
46 47	41.6 42.5	19.7 20.1	06 07	95. 8 96. 7	45.3 45.7	66	150.1	71.0	26	204.3	96.6	86	258.5	122.3
48	43. 4	20. 1	08	97.6	46. 2	67 68	151.0 151.9	71. 4 71. 8	27 28	205. 2 206. 1	97.1 97.5	87 88	259. 4 260. 3	122. 7 123. 1
49	44.3	21.0	09	98.5	46.6	69	152.8	72.3	29	207.0	97.9	89	261.3	123.6
50	45.2	21.4	10	99.4	47.0	70	153.7	72.7	30	207.9	98.3	90	262.2	124.0
51 52	46. 1 47. 0	21. 8 22. 2	111 .12	100.3 101.2	47.5 47.9	$\begin{array}{c} 171 \\ 72 \end{array}$	154. 6 155. 5	73. 1 73. 5	$\begin{array}{c} 231 \\ 32 \end{array}$	208. 8 209. 7	98. 8 99. 2	291 92	263. 1 264. 0	124. 4 124. 8
53	47.9	22.7	13	102.2	48.3	73	156.4	74.0	33	210.6	99.6	93	264. 9	125.3
54	48.8	23.1	14	103.1	48.7	74	157.3	74.4	34	211.5	100.0	94	265.8	125.7
55 56	49. 7 50. 6	23.5 23.9	15 16	104. 0 104. 9	49.2 49.6	75 76	158. 2 159. 1	74.8 75.2	35 36	212.4 213.3	100.5 100.9	95 96	266. 7 267. 6	126. 1 126. 6
57	51.5	24.4	17	104. 9	50.0	77	160.0	75. 7	37	214. 2	100.9	97	268.5	120.0
58	52.4	24.8	18	106.7	50.5	78	160.9	76. 1	38	215.1	101.8	98	269.4	127.4
59 60	53. 3 54. 2	$\begin{vmatrix} 25.2 \\ 25.7 \end{vmatrix}$	19 20	107. 6 108. 5	50.9 51.3	79 80	161.8	76.5	39	216.1	102. 2	99	270.3	127.8
	OT. 2	20.1	20	100.0	01.0		162.7	77.0	40	217.0	102.6	300	271. 2	128.3
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
NE	E. by E.	3 E.	SE	by E.	3 E.	NW	. by W.	3 W.	SW	. by W.	³ / ₄ W.	[]	For 5¾ P	oints.
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,														-

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TABLE 1.

Difference of Latitude and Departure for $2\frac{1}{2}$ Points.

	NNE. ½ E. NNW. ½ W. SSE. ½ E. SSW. ½ W.													
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.5	61	53.8	28.8	121	106. 7	57.0	181	159. 6	85.3	241	212.5	113.6
$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$	1.8	0.9	62	54. 7 55. 6	29. 2 29. 7	$\frac{22}{23}$	107. 6 108. 5	57.5	82 83	160.5	85. 8 86. 3	42	213. 4	114.1
4	$\begin{array}{c} 2.6 \\ 3.5 \end{array}$	1. 4 1. 9	63 64	56.4	30. 2	23 24	109.4	58.0 58.5	84	161. 4 162. 3	86.7	43 44	215. 2	114.5 115.0
5	4.4	2.4	65	57.3	30.6	$2\overline{5}$	110. 2	58.9	85	163. 2	87. 2	45	216. 1	115.5
6	5.3	2.8	66	58.2	31.1	26	111.1	59.4	86	164.0	87.7	46	217.0	116.0
7	6.2	3.3	67	59.1	31.6	27	112.0	59.9	87	164.9	88. 2	47	217.8	116.4
8 9	7. 1 7. 9	$\frac{3.8}{4.2}$	68 69	60. 0 60. 9	$\begin{vmatrix} 32.1 \\ 32.5 \end{vmatrix}$	28 29	112. 9 113. 8	60.3 60.8	88 89	165. 8 166. 7	88. 6 89. 1	48 49	218. 7 219. 6	116. 9 117. 4
10	8.8	4. 7	70	61.7	33.0	30	114.6	61.3	90	167.6	89.6	50	219.6 220.5	117.4
11	$\frac{-9.7}{9.7}$	5. 2	$\overline{71}$	62.6	33.5	131	115.5	61.8	191	168. 4	90.0	251	221.4	118.3
12	10.6	5.7	72	63. 5	33.9	32	116.4	62. 2	92	169.3	90.5	52	222. 2	118.8
13	11.5	6.1	73	64. 4	34. 4	33	117.3	62. 7	93	170. 2	91.0	53	223. 1	119.3
14	$12.3 \\ 13.2$	6.6 7.1	74	65. 3	34.9	$\begin{array}{c} 34 \\ 35 \end{array}$	118. 2 119. 1	63. 2 63. 6	94 95	171. 1 172. 0	91.5 91.9	54 55	224.0 224.9	119. 7 120. 2
15 16	14.1	7. 5	75 76	66. 1 67. 0	35. 4 35. 8	36	119.1	64.1	96	172.0	92.4	56	225.8	120. 2
17	15.0	8.0	77	67. 9	36.3	37	120.8	64.6	97	173. 7	92.9	57	226.7	121.1
18	15. 9	8.5	78	68.8	36.8	38	121.7	65.1	98	173. 7 174. 6	93.3	58	227.5	121.6
19	16.8	9.0	79	69.7	37.2	39	122.6	65. 5	99	175.5	93.8	59	228.4	122.1
20	17.6	$\frac{9.4}{0.0}$	80	70.6	$\frac{37.7}{38.2}$	40	123.5	66.0	200	$\frac{176.4}{177.3}$	94.3	60	229. 3	122.6
21 22	18. 5 19. 4	$9.9 \\ 10.4$	81 82	71.4	38.7	$\begin{array}{c} 141 \\ 42 \end{array}$	124. 4 125. 2	66. 5 66. 9	$\frac{201}{02}$	178.1	94. 8 95. 2	$\frac{261}{62}$	330. 2 231. 1	123. 0 123. 5
23	20. 3	10. 8	83	72. 3 73. 2	39. 1	43	126. 1	67.4	03	178. 1 179. 0	95.7	63	231. 9	124. 0
24	21.2	11.3	84	74. 1	39.6	44	127.0	67.9	04	179.9	96.2	64	232.8	124.4
25	22.0	11.8	85	75.0	40. 1	45	127. 9	68. 4	05	180. 8 181. 7	96.6	65	233.7	124. 9
26 27	22. 9 23. 8	12. 3 12. 7	86 87	75. 8 76. 7	40.5	46 47	128. 8 129. 6	68. 8 69. 3	06 07	181. 7 182. 6	97. 1 97. 6	66 67	234. 6 235. 5	125. 4 125. 9
28	24.7	13. 2	88	77.6	41.5	48	130.5	69.8	08	183.4	98.1	68	236. 4	126. 3
29	25. 6	13. 7	89	78. 5	42.0	49	131.4	70. 2	09	184.3	98.5	69	237. 2	126.8
30	26.5	14.1	90	79.4	42.4	50	132.3	70. 7	10	185. 2	99.0	70	238. 1	127.3
31	27.3	14.6	91	80. 3	42. 9	151	133. 2	71. 2	211	186. 1	99.5	271	239.0	127. 7
32 33	28. 2 29. 1	15. 1 15. 6	92 93	81. 1 82. 0	43. 4 43. 8	52 53	134. 1 134. 9	71.7 72.1	12 13	187. 0 187. 8	99. 9 100. 4	72 73	239. 9 240. 8	128. 2 128. 7
34	30. 0	16.0	94	82. 9	44.3	54	135. 8	72.6	14	188. 7	100. 9	74	241.6	129. 2
35	30.9	16.5	95	83.8	44.8	55	136.7	73.1	15	189.6	101.4	75	242.5	129.6
36	31.7	17.0	96	84. 7	45.3	56	137.6	73.5	16	190.5	101.8	76	243.4	130.1
37 38	32. 6 33. 5	17.4 17.9	97 98	85.5	45.7	57	138.5 139.3	74. 0 74. 5	17 18	191.4	102.3 102.8	77	244.3	130. 6 131. 0
39	34. 4	18.4	99	86. 4 87. 3	46. 2 46. 7	58 59	140. 2	75.0	19	192. 3 193. 1	102. 8	78 79	245. 2 246. 1	131. 5
40	35. 3	18.9	100	88. 2	47.1	60	141.1	75.4	20	194. 0	103. 7	80	246. 9	132.0
41	36. 2	19.3	101	89. 1	47.6	161	142.0	75.9	221	194.9	104.2	281	247.8	132.5
42	37.0	19.8	02	90.0	48.1	62	142.9	76.4	22	195.8	104. 7	82	248.7	132.9
43 44	37. 9 38. 8	20.3 20.7	03 04	90. 8 91. 7	48. 6 49. 0	63 64	143. 8 144. 6	76.8 77.3	23 24	196. 7 197. 6	105. 1 105. 6	83	249. 6 250. 5	133. 4 133. 9
45	39.7	21.2	05	92.6	49. 5	65	145.5	77.8	25	197. 6	106. 1	84 85	251.3	133. 9
46	40.6	21.7	06	93.5	50.0	66	146. 4	78.3	26	199.3	106.5	86	252. 2	134.8
47	41.5	22.2	07	94.4	50.4	67	147.3	78.7	27	200.2	107.0	87	253. 1	135.3
48 49	42.3 43.2	$22.6 \\ 23.1$	08 09	95. 2 96. 1	50.9	68 69	148. 2 149. 0	79. 2 79. 7	28 29	201. 1 202. 0	107.5	88 89	254. 0 254. 9	135.8
50	44. 1	23. 6	10	97. 0	51. 4 51. 9	70	149.0	80.1	30	202. 0	107. 9 108. 4	90	255.8	136. 2 136. 7
51	45.0	24.0			52.3		150.8			203. 7			256.6	137. 2
52	45.9	24.5	12	98.8	52.8	72	151. 7	81.1	32	204.6	109.4	92	257. 5	137.6
53	46.7	25.0	13	99.7	53. 3	73	152.6	81.6	33	205.5	109.8	93	258. 4	138.1
54 55	47. 6 48. 5	25. 5 25. 9	14 15	100. 5 101. 4	53.7 54.2	74 75	153. 5 154. 3	82. 0 82. 5	34 35	206. 4 207. 3	110.3 110.8	94 95	259. 3 260. 2	138.6 139.1
56	49. 4	26. 4	16	101.4	54.7	76	155. 2	83. 0	36	207. 3	111.2	96	261. 0	139.1
57	50.3	26.9	17	103.2	55.2	77	156. 1	83.4	37	209.0	111.7	97	261.9	140.0
58	51.2	27.3	18	104.1	55.6	78	157.0	83. 9	38	209.9	112.2	98	262.8	140.5
59 60	52. 0 52. 0	$27.8 \\ 28.3$	19	104.9	56.1	79	157.9	84.4	39	210.8	112.7	300	263.7	140.9
00	52. 9	40.0	20	105.8	56. 6	80	158. 7	84.9	40	211. 7	113. 1	300	264.6	141. 4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist,	Dep.	Lat.
NE	by E.	½ E.	SE	by E.	½ E.	NW	. by W.	1 W.	SW	. by W.	1 W.	[]	For 5½ P	oints.
				•								_	- 4	

Difference of Latitude and Departure for $2\frac{3}{4}$ Points.

	NNE. 3 E.				NNW.	3 W.		SSI	E. 3 E	•	SSW. ¾ W.			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1 2	$0.9 \\ 1.7$	0. 5 1. 0	61 62	52. 3 53. 2	31. 4 31. 9	121 22	103.8 104.6	$62.2 \\ 62.7$	181 82	155. 2 156. 1	93. 1 93. 6	241 42	206. 7 207. 6	123.9 124.4
3 4	$\frac{2.6}{3.4}$	$\frac{1.5}{2.1}$	63 64	$54.0 \\ 54.9$	32. 4 32. 9	23 24	105. 5 106. 4	63. 2 63. 7	83 84	$157.0 \\ 157.8$	$94.1 \\ 94.6$	43	208. 4 209. 3	124.9 125.4
5 6	4.3 5.1	$\begin{array}{c} 2.6 \\ 3.1 \end{array}$	65 66	55. 8 56. 6	33. 4 33. 9	$\begin{bmatrix} 25 \\ 26 \end{bmatrix}$	107. 2 108. 1	64. 3 64. 8	85 86	158.7 159.5	$95.1 \\ 95.6$	45 46	210. 1 211. 0	126.0 126.5
7 8	6. 0 6. 9	$3.6 \\ 4.1$	67 68	$\begin{array}{c} 57.5 \\ 58.3 \end{array}$	34. 4 35. 0	27 28	108. 9 109. 8	65. 3 65. 8	87 88	160. 4 161. 3	96. 1 96. 7	47 48	211. 9 212. 7	127.0 127.5
9	7. 7 8. 6	$\frac{4.6}{5.1}$	69 70	59. 2 60. 0	35. 5 36. 0	29 30	110.6 111.5	66. 3 66. 8	89 90	162. 1 163. 0	97. 2 97. 7	49 50	213. 6 214. 4	128.0 128.5
$\begin{array}{c c} 11 \\ 12 \end{array}$	9.4	$\frac{5.7}{6.2}$	$\begin{array}{c c} 71 \\ 72 \end{array}$	60. 9 61. 8	36. 5 37. 0	$\begin{array}{c} 131 \\ 32 \end{array}$	112. 4 113. 2	67.3 67.9	$\frac{191}{92}$	163.8 164.7	98. 2 98. 7	$\begin{array}{c} 251 \\ 52 \end{array}$	215. 3 216. 1	129.0 129.6
13	11.2	6.7	73	62. 6 63. 5	37. 5 38. 0	33 34	114. 1 114. 9	68. 4 68. 9	93 94	165. 5 166. 4	99. 2 99. 7	53 54	$217.0 \\ 217.9$	130. 1 130. 6
14 15	12.0 12.9	7.2	74 75	64. 3	38.6	35	115.8	69.4	95	167.3	100.3	55	218.7	131. 1
16 17	13.7 14.6	8. 2 8. 7	76 77	65. 2 66. 0	39. 1 39. 6	36 37	116. 7 117. 5	69. 9 70. 4	96 97	168. 1 169. 0	100.8 101.3	56 57	219. 6 220. 4	131.6 132.1
18 19	15. 4 16. 3	9.3 9.8	78 79	66. 9 67. 8	40. 1 40. 6	38 39	$118.4 \\ 119.2$	$70.9 \\ 71.5$	98 99	169. 8 170. 7	101.8 102.3	58 59	$221.3 \\ 222.2$	132.6 133.2
$\frac{20}{21}$	$\frac{17.2}{18.0}$	$\frac{10.3}{10.8}$	$\frac{80}{81}$	68.6 69.5	$\frac{41.1}{41.6}$	$\frac{40}{141}$	$\frac{120.1}{120.9}$	$\frac{72.0}{72.5}$	$\frac{200}{201}$	$\frac{171.5}{172.4}$	102.8 103.3	$\frac{60}{261}$	$\frac{223.0}{223.9}$	$\frac{133.7}{134.2}$
22 23	18. 9 19. 7	11.3	82 83	70.3 71.2	42. 2 42. 7	42 43	121.8 122.7	73. 0 73. 5	02	173.3 174.1	103. 8 104. 4	62 63	224.7 225.6	134.7 135.2
24	20.6	12. 3 12. 9	84 85	72.0 72.9	43. 2 43. 7	44 45	123. 5 124. 4	74. 0 74. 5	04 05	175. 0 175. 8	104. 9 105. 4	64 65	226.4 227.3	135. 7 136. 2
25 26	21.4	13.4	86	73.8	44.2	46	125.2	75.1	06	176.7	105.9	66	228. 2 229. 0	136. 8 137. 3
27 28	23.2 24.0	13. 9 14. 4	87 88	74. 6 75. 5	44. 7 45. 2	47	126. 1 126. 9	75. 6 76. 1	07 08	177.5 178.4	106. 4 106. 9	67 68	229.9	137.8
29 30	$24.9 \\ 25.7$	14. 9 15. 4	89 90	76. 3 77. 2	45. 8 46. 3	49 50	127.8 128.7	76. 6 77. 1	09 10	179.3 180.1	107. 4 108. 0	69 70	230.7 231.6	138.3 138.8
$\frac{31}{32}$	$26.6 \\ 27.4$	15. 9 16. 5	$\frac{91}{92}$	78. 1 78. 9	46. 8 47. 3	$\frac{151}{52}$	129. 5 130. 4	77. 6 78. 1	$\begin{array}{c} 211 \\ 12 \end{array}$	181. 0 181. 8	108.5 109.0	$\begin{array}{c} 271 \\ 72 \end{array}$	232. 4 233. 3	139.3 139.8
33 34	28. 3 29. 2	17.0 17.5	93 94	79.8 80.6	47. 8 48. 3	53 54	131. 2 132. 1	78. 7 79. 2	13 14	182. 7 183. 6	109.5 110.0	73 74	234. 2 235. 0	140. 4 140. 9
35 36	30. 0 30. 9	18. 0 18. 5	95 96	81. 5 82. 3	48. 8 49. 4	55 56	132.9 133.8	79. 7 80. 2	15 16	184. 4 185. 3	110.5 111.0	75 76	235. 9 236. 7	141. 4 141. 9
37 38	31. 7 32. 6	19.0 19.5	97 98	83. 2 84. 1	49. 9 50. 4	57 58	134. 7 135. 5	80. 7 81. 2	17 18	186. 1 187. 0	111.6 112.1	77 78	237. 6 238. 4	142.4 142.9
39 40	33. 5 34. 3	20. 1 20. 6	99 100	84. 9 85. 8	50. 9 51. 4	59 60	136. 4 137. 2	81. 7 82. 3	19 20	187. 8 188. 7	112.6 113.1	79 80	239.3 240.2	143. 4 143. 9
41	35. 2	21.1	101	86.6	51.9	161	138.1	82.8	221	189.6	113.6	281	241.0	144.5
42 43	36. 0 36. 9	21.6	02 03	87. 5 88. 3	52. 4 53. 0	62 63	139. 0 139. 8	83. 3	22 23	190. 4 191. 3	114. 1 114. 6	82 83	241. 9 242. 7	145. 0 145. 5
44 45	37. 7 38. 6	22. 6 23. 1	04 05	89. 2 90. 1	53.5	64 65	140. 7 141. 5	84. 3	24 25	192. 1 193. 0	115. 2 115. 7	84 85	243. 6 244. 5	146. 0 146. 5
46 47	39.5 40.3	$\begin{vmatrix} 23.6 \\ 24.2 \end{vmatrix}$	06 07	90. 9 91. 8	54.5 55.0	66 67	142. 4 143. 2	85.3 85.9	26 27	193. 8 194. 7	116. 2 116. 7	86 87	245.3 246.2	147. 0 147. 5
48 49	41. 2 42. 0	24. 7 25. 2	08 09	92. 6 93. 5	55.5 56.0	68 69	144. 1 145. 0	86.4	28 29	195. 6 196. 4	117. 2 117. 7	88 89	$247.0 \\ 247.9$	148. 1 148. 6
$\frac{50}{51}$	$\frac{42.9}{43.7}$	$\frac{25.7}{26.2}$	10	$\frac{94.4}{95.2}$	56.6	$\frac{70}{171}$	145. 8 146. 7	87.4	30 231	$\frac{197.3}{198.1}$	$\frac{118.2}{118.8}$	$\frac{90}{291}$	$\frac{248.7}{249.6}$	$\frac{149.1}{149.6}$
52	44.6	26.7	12	96.1	57.6	72	147.5	88.4	32	199.0	119.3	92	250.5	150.1
53 54	45.5	27. 2 27. 8	13 14	96. 9 97. 8	58. 1	73 74	148. 4 149. 2	88.9	33 34	199. 9	119.8 120.3	93 94	251. 3 252. 2	150. 6 151. 1
55 56	47. 2 48. 0	28.3	15 16	98. 6 99. 5	59. 1	75 76	150. 1 151. 0	90. 0	35 36	201. 6 202. 4	$\begin{vmatrix} 120.8 \\ 121.3 \end{vmatrix}$	95 96	253. 0 253. 9	151. 7 152. 2
57 58	48.9 49.7	29.3 29.8	17 18	100. 4 101. 2	60. 2	77 78	151.8 152.7	$\begin{vmatrix} 91.0 \\ 91.5 \end{vmatrix}$	37 38	203.3	121.8 122.4	97 98	254. 7 255. 6	152. 7 153. 2
59 60	50. 6 51. 5	30.3	19 20	102. 1 102. 9	61. 2 61. 7	79 80	153. 5 154. 4	92.0	39 40	205. 0 205. 9	122. 9 123. 4	99 300	256. 5 257. 3	153. 7 154. 2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
N.	E. by E	. \frac{1}{4} E.	Sl	E. by E	. ½ E.	NW	by W	. ¼ W.	SW	. by W	. ¼ W.	[Fo	r 5‡ Poi	nts.

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TABLE 1.

Difference of Latitude and Departure for 3 Points.

NE. by	N.		NW.	by N.	b	S	E. by	S.		SW. by S.		
Dist. Lat. Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1 0.8 0.6 2 1.7 1.1 3 2.5 1.7 4 3.3 2.2 5 4.2 2.8 6 5.0 3.3 7 5.8 3.9 8 6.7 4.4 9 7.5 5.0 10 8.3 5.6	61 62 63 64 65 66 67 68 69 70	50. 7 51. 6 52. 4 53. 2 54. 0 54. 9 55. 7 56. 5 57. 4 58. 2	33. 9 34. 4 35. 0 35. 6 36. 1 36. 7 37. 2 37. 8 38. 3 38. 9	121 22 23 24 25 26 27 28 29 30	100. 6 101. 4 102. 3 103. 1 103. 9 104. 8 105. 6 106. 4 107. 3 108. 1	67. 2 67. 8 68. 3 68. 9 69. 4 70. 0 70. 6 71. 1 71. 7 72. 2	181 82 83 84 85 86 87 88 89	150. 5 151. 3 152. 2 153. 0 153. 8 154. 7 155. 5 156. 3 157. 1 158. 0	100. 6 101. 1 101. 7 102. 2 102. 8 103. 3 103. 9 104. 4 105. 0 105. 6	241 42 43 44 45 46 47 48 49 50	200. 4 201. 2 202. 0 202. 9 203. 7 204. 5 205. 4 206. 2 207. 0 207. 9	133. 9 134. 4 135. 0 135. 6 136. 1 136. 7 137. 2 137. 8 138. 3 138. 9
11 9.1 6.1 12 10.0 6.7 13 10.8 7.2 14 11.6 7.8 15 12.5 8.3 16 13.3 8.9 17 14.1 9.4 18 15.0 10.0 19 15.8 10.6 20 16.6 11.1	71 72 73 74 75 76 77 78 79 80	59. 0 59. 9 60. 7 61. 5 62. 4 63. 2 64. 0 64. 9 65. 7 66. 5	39. 4 40. 0 40. 6 41. 1 41. 7 42. 2 42. 8 43. 3 43. 9 44. 4	131 32 33 34 35 36 37 38 39 40	108. 9 109. 8 110. 6 111. 4 112. 2 113. 1 113. 9 114. 7 115. 6 116. 4	72. 8 73. 3 73. 9 74. 4 75. 0 75. 6 76. 1 76. 7 77. 2 77. 8	191 92 93 94 95 96 97 98 99 200	158. 8 159. 6 160. 5 161. 3 162. 1 163. 0 163. 8 164. 6 165. 5 166. 3	106. 1 106. 7 107. 2 107. 8 108. 3 108. 9 109. 4 110. 0 110. 6 111. 1	251 52 53 54 55 56 57 58 59 60	208. 7 209. 5 210. 4 211. 2 212. 0 212. 9 213. 7 214. 5 215. 4 216. 2	139. 4 140. 0 140. 6 141. 1 141. 7 142. 2 142. 8 143. 3 143. 9 144. 4
21 17.5 11.7 22 18.3 12.2 23 19.1 12.8 24 20.0 13.3 25 20.8 13.9 26 21.6 14.4 27 22.4 15.0 28 23.3 15.6 29 24.1 16.1 30 24.9 16.7	81 82 83 84 85 86 87 88 89 90	67. 3 68. 2 69. 0 69. 8 70. 7 71. 5 72. 3 73. 2 74. 0 74. 8	45. 0 45. 6 46. 1 46. 7 47. 2 47. 8 48. 3 48. 9 49. 4 50. 0	141 42 43 44 45 46 47 48 49 50	117. 2 118. 1 118. 9 119. 7 120. 6 121. 4 122. 2 123. 1 123. 9 124. 7	78. 3 78. 9 79. 4 80. 0 80. 6 81. 1 81. 7 82. 2 82. 8 83. 3	201 02 03 04 05 06 07 08 09 10	167. 1 168. 0 168. 8 169. 6 170. 5 171. 3 172. 1 172. 9 173. 8 174. 6	111. 7 112. 2 112. 8 113. 3 113. 9 114. 4 115. 0 115. 6 116. 1 116. 7	261 62 63 64 65 66 67 68 69 70	217. 0 217. 8 218. 7 219. 5 220. 3 221. 2 222. 0 222. 8 223. 7 224. 5	145. 0 145. 6 146. 1 146. 7 147. 2 147. 8 148. 3 148. 9 149. 4 150. 0
31 25.8 17.2 32 26.6 17.8 33 27.4 18.3 34 28.3 18.9 35 29.1 19.4 36 29.9 20.0 37 30.8 20.6 38 31.6 21.1 39 32.4 21.7 40 33.3 22.2	91 92 93 94 95 96 97 98 99	75. 7 76. 5 77. 3 78. 2 79. 0 79. 8 80. 7 81. 5 82. 3 83. 1	50.6 51.1 51.7 52.2 52.8 53.3 53.9 54.4 55.0 55.6	151 52 53 54 55 56 57 58 59 60	125. 6 126. 4 127. 2 128. 0 128. 9 129. 7 130. 5 131. 4 132. 2 133. 0	83. 9 84. 4 85. 0 85. 6 86. 1 86. 7 87. 2 87. 8 88. 3 88. 9	211 12 13 14 15 16 17 18 19 20	175. 4 176. 3 177. 1 177. 9 178. 8 179. 6 180. 4 181. 3 182. 1 182. 9	117. 2 117. 8 118. 3 118. 9 119. 4 120. 0 120. 6 121. 1 121. 7 122. 2	271 72 73 74 75 76 77 78 79 80	225. 3 226. 2 227. 0 227. 8 228. 7 229. 5 230. 3 231. 1 232. 0 232. 8	150. 6 151. 1 151. 7 152. 2 152. 8 153. 3 153. 9 154. 4 155. 0 155. 6
41 34.1 22.8 42 34.9 23.3 43 35.8 23.9 44 36.6 24.4 45 37.4 25.0 46 38.2 25.6 47 39.1 26.1 48 39.9 26.7 49 40.7 27.2 50 41.6 27.8	101 02 03 04 05 06 07 08 09 10	84. 0 84. 8 85. 6 86. 5 87. 3 88. 1 89. 0 89. 8 90. 6 91. 5	56. 1 56. 7 57. 2 57. 8 58. 3 58. 9 59. 4 60. 0 60. 6 61. 1	161 62 63 64 65 66 67 68 69 70	133. 9 134. 7 135. 5 136. 4 137. 2 138. 0 138. 9 139. 7 140. 5 141. 3	89. 4 90. 0 90. 6 91. 1 91. 7 92. 2 92. 8 93. 3 93. 9 94. 4	221 22 23 24 25 26 27 28 29 30	183. 8 184. 6 185. 4 186. 2 187. 1 187. 9 188. 7 189. 6 190. 4 191. 2	122.8 123.3 123.9 124.4 125.0 125.6 126.1 126.7 127.2 127.8	281 82 83 84 85 86 87 88 89 90	233. 6 234. 5 235. 3 236. 1 237. 0 237. 8 238. 6 239. 5 240. 3 241. 1	156. 1 156. 7 157. 2 157. 8 158. 3 158. 9 159. 4 160. 0 160. 6 161. 1
51 42.4 28.3 52 43.2 28.9 53 44.1 29.4 54 44.9 30.0 55 45.7 30.6 56 46.6 31.1 57 47.4 31.7 58 48.2 32.2 59 49.1 32.8 60 49.9 33.3	111 12 13 14 15 16 17 18 19 20	92.3 93.1 94.0 94.8 95.6 96.5 97.3 98.1 98.9 99.8	61. 7 62. 2 62. 8 63. 3 63. 9 64. 4 65. 0 65. 6 66. 1 66. 7	171 72 73 . 74 75 76 77 78 79 80	142. 2 143. 0 143. 8 144. 7 145. 5 146. 3 147. 2 148. 0 148. 8 149. 7	95. 0 95. 6 96. 1 96. 7 97. 2 97. 8 98. 3 98. 9 99. 4 100. 0	231 32 33 34 35 36 37 38 39 40	192. 1 192. 9 193. 7 194. 6 195. 4 196. 2 197. 1 197. 9 198. 7 199. 6	128. 3 128. 9 129. 4 130. 0 130. 6 131. 1 131. 7 132. 2 132. 8 133. 3	291 92 93 94 95 96 97 98 99 300	242. 0 242. 8 243. 6 244. 5 245. 3 246. 1 246. 9 247. 8 248. 6 249. 4	161. 7 162. 2 162. 8 163. 3 163. 9 164. 4 165. 0 165. 6 166. 1 166. 7
Dist. Dep. Lat. NE. by E.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep. or 5 Poi	Lat.

Difference of Latitude and Departure for 31 Points.

	NE. ¾ N.				NW.	³ N.		S	E. 3 S			SW.	₹ S.	
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1 2 3	0.8 1.6 2.4	0.6 1.2 1.8	61 62 63	49. 0 49. 8 50. 6	36. 3 36. 9 37. 5	121 22 23 24	97. 2 98. 0 98. 8 99. 6	72. 1 72. 7 73. 3 73. 9	181 82 83 84	145. 4 146. 2 147. 0 147. 8	107. 8 108. 4 109. 0 109. 6	241 42 43 44	193. 6 194. 4 195. 2 196. 0	143.6 144.2 144.8 145.4
4 5 6 7 8	3. 2 4. 0 4. 8 5. 6 6. 4	2. 4 3. 0 3. 6 4. 2 4. 8	64 65 66 67 68	51. 4 52. 2 53. 0 53. 8 54. 6	38. 1 38. 7 39. 3 39. 9 40. 5	25 26 27 28	100. 4 101. 2 102. 0 102. 8	74. 5 75. 1 75. 7 76. 2	85 86 87 88	148. 6 149. 4 150. 2 151. 0	110. 2 110. 8 111. 4 112. 0	45 46 47 48	196. 8 197. 6 198. 4 199. 2	145. 9 146. 5 147. 1 147. 7
9 10 11	$\frac{7.2}{8.0}$	$ \begin{array}{r} 5.4 \\ 6.0 \\ \hline 6.6 \end{array} $	69 70 71	55. 4 56. 2 57. \checkmark	41.1 41.7 42.3	$\frac{29}{30}$	$ \begin{array}{c c} 103.6 \\ 104.4 \\ \hline 105.2 \end{array} $	76. 8 77. 4 78. 0	89 90 191	$\frac{151.8}{152.6}$ $\overline{153.4}$	$\frac{112.6}{113.2}$ $\overline{113.8}$	$\begin{array}{r} 49 \\ 50 \\ \hline 251 \end{array}$	200. 0 200. 8 201. 6	$\frac{148.3}{148.9}$ $\overline{149.5}$
12 13 14 15	9. 6 10. 4 11. 2 12. 0	7.1 7.7 8.3 8.9	72 73 74 75	57. 8 58. 6 59. 4 60. 2	42.9 43.5 44.1 44.7	32 33 34 35	106. 0 106. 8 107. 6 108. 4	78. 6 79. 2 79. 8 80. 4	92 93 94 95	154. 2 155. 0 155. 8 156. 6	114. 4 115. 0 115. 6 116. 2	52 53 54 55	202. 4 203. 2 204. 0 204. 8	150. 1 150. 7 151. 3 151. 9
16 17 18 19 20	12. 9 13. 7 14. 5 15. 3 16. 1	9.5 10.1 10.7 11.3 11.9	76 77 78 79 80	61. 0 61. 8 62. 7 63. 5 64. 3	45. 3 45. 9 46. 5 47. 1 47. 7	36 37 38 39 40	109. 2 110. 0 110. 8 111. 6 112. 4	81. 0 81. 6 82. 2 82. 8 83. 4	96 97 98 99 200	157. 4 158. 2 159. 0 159. 8 160. 6	116. 8 117. 4 117. 9 118. 5 119. 1	56 57 58 59 60	205. 6 206. 4 207. 2 208. 0 208. 8	152. 5 153. 1 153. 7 154. 3 154. 9
21 22 23 24 25	16. 9 17. 7 18. 5 19. 3 20. 1	12. 5 13. 1 13. 7 14. 3 14. 9	81 82 83 84 85	65. 1 65. 9 66. 7 67. 5 68. 3	48. 3 48. 8 49. 4 50. 0 50. 6	141 42 43 44 45	113. 3 114. 1 114. 9 115. 7 116. 5	84. 0 84. 6 85. 2 85. 8 86. 4	201 02 03 04 05	161. 4 162. 2 163. 1 163. 9 164. 7	119.7 120.3 120.9 121.5 122.1	261 62 63 64 65	209. 6 210. 4 211. 2 212. 0 212. 8	155. 5 156. 1 156. 7 157. 3 157. 9
26 27 28 29	20. 9 21. 7 22. 5 23. 3	15. 5 16. 1 16. 7 17. 3	86 87 88 89	69. 1 69. 9 70. 7 71. 5	51. 2 51. 8 52. 4 53. 0	46 47 48 49	117. 3 118. 1 118. 9 119. 7	87. 0 87. 6 88. 2 88. 8	06 07 08 09	165. 5 166. 3 167. 1 167. 9	122. 7 123. 3 123. 9 124. 5	66 67 68 69	212.8 213.7 214.5 215.3 216.1	158. 5 159. 1 159. 6 160. 2
30 31 32 33 34	24. 1 24. 9 25. 7 26. 5 27. 3	17.9 18.5 19.1 19.7 20.3	$ \begin{array}{r} 90 \\ \hline 91 \\ 92 \\ 93 \\ 94 \end{array} $	72.3 73.1 73.9 74.7 75.5	53. 6 54. 2 54. 8 55. 4 56. 0	50 151 52 53 54	$ \begin{array}{r} 120.5 \\ \hline 121.3 \\ 122.1 \\ 122.9 \\ 123.7 \end{array} $	90. 0 90. 5 91. 1 91. 7	10 211 12 13 14	168. 7 169. 5 170. 3 171. 1 171. 9	125. 1 125. 7 126. 3 126. 9 127. 5	70 271 72 73 74	216. 9 217. 7 218. 5 219. 3 220. 1	160. 8 161. 4 162. 0 162. 6 163. 2
35 36 37 38	28. 1 28. 9 29. 7 30. 5	20.8 21.4 22.0 22.6	95 96 97 98	76.3 77.1 77.9 78.7	56.6 57.2 57.8 58.4	55 56 57 58	124. 5 125. 3 126. 1 126. 9	92.3 92.9 93.5 94.1	15 16 17 18	172. 7 173. 5 174. 3 175. 1	128. 1 128. 7 129. 3 129. 9	75 76 77 78	220. 9 221. 7 222. 5 223. 3	163. 8 164. 4 165. 0 165. 6
$ \begin{array}{r} 39 \\ 40 \\ \hline 41 \\ 42 \end{array} $	$ \begin{array}{r} 31.3 \\ 32.1 \\ \hline 32.9 \\ 33.7 \end{array} $	$ \begin{array}{r} 23.2 \\ 23.8 \\ \hline 24.4 \\ 25.0 \end{array} $	$ \begin{array}{r} 99 \\ 100 \\ \hline 101 \\ 02 \end{array} $	79. 5 80. 3 81. 1 81. 9	59.0 59.6 60.2 60.8	$ \begin{array}{r} 59 \\ 60 \\ \hline 161 \\ 62 \end{array} $	$ \begin{array}{r} 127.7 \\ 128.5 \\ \hline 129.3 \\ 130.1 \end{array} $	94. 7 95. 3 95. 9 96. 5	$\begin{array}{r} 19 \\ 20 \\ \hline 221 \\ 22 \end{array}$	175.9 176.7 177.5 178.3	$ \begin{array}{r} 130.5 \\ 131.1 \\ \hline 131.6 \\ 132.2 \end{array} $	79 80 281 82	$\begin{array}{r} 224.1 \\ 224.9 \\ \hline 225.7 \\ 226.5 \end{array}$	166. 2 166. 8 167. 4 168. 0
43 44 45 46	34. 5 35. 3 36. 1 36. 9	25. 6 26. 2 26. 8 27. 4	03 04 05 06	82. 7 83. 5 84. 3 85. 1	61. 4 62. 0 62. 5 63. 1	63 64 65 66	130. 9 131. 7 132. 5 133. 3	97. 1 97. 7 98. 3 98. 9	23 24 25 26	179. 1 179. 9 180. 7 181. 5	132. 8 133. 4 134. 0 134. 6	83 84 85 86	227. 3 228. 1 228. 9 229. 7	168. 6 169. 2 169. 8 170. 4
47 48 49 50	37. 8 38. 6 39. 4 40. 2	28. 0 28. 6 29. 2 29. 8	07 08 09 10	85. 9 86. 7 87. 5 88. 4	63.7 64.3 64.9 65.5	67 68 69 70	134. 1 134. 9 135. 7 136. 5	99. 5 100. 1 100. 7 101. 3	27 28 29 30	182. 3 183. 1 183. 9 184. 7	135. 2 135. 8 136. 4 137. 0	87 88 89 90	230. 5 231. 3 232. 1 232. 9	171. 0 171. 6 172. 2 172. 8
51 52 53 54 55	41. 0 41. 8 42. 6 43. 4 44. 2	30. 4 31. 0 31. 6 32. 2 32. 8	111 12 13 14 15	89. 2 90. 0 90. 8 91. 6 92. 4	66. 1 66. 7 67. 3 67. 9 68. 5	171 72 73 74 75	137. 3 138. 2 139. 0 139. 8 140. 6	101. 9 102. 5 103. 1 103. 7 104. 2	231 32 33 34 35	185. 5 186. 3 187. 1 188. 0 188. 8	137. 6 138. 2 138. 8 139. 4 140. 0	291 92 93 94 95	233. 7 234. 5 235. 3 236. 1 236. 9	173. 3 173. 9 174. 5 175. 1 175. 7
56 57 58 59	45. 0 45. 8 46. 6 47. 4	33. 4 34. 0 34. 6 35. 1	16 17 18 19	93. 2 94. 0 94. 8 95. 6	69. 1 69. 7 70. 3 70. 9	76 77 78 79	141. 4 142. 2 143. 0 143. 8	104. 8 105. 4 106. 0 106. 6	36 37 38 39	189. 6 190. 4 191. 2 192. 0	140. 6 141. 2 141. 8 142. 4	96 97 98 99	237.7 238.6 239.4 240.2	176. 3 176. 9 177. 5 178. 1
60	48. 2	35. 7	20 Dist	96. 4	71.5	80 Dist	144.6	107.2	40 Dist	192.8	143.0	300	241.0	178. 7
Dist.	Dep.	E.	Dist.	Dep. SE. 3 E	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep. or 43 Po	Lat.
L														-

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TABLE 1.

Difference of Latitude and Departure for 3½ Points.

NW 1N SE 1S

		NE.	N.		NW	$\frac{1}{2}$ N.		SE	$\frac{1}{2}$ S.		SV	W. ½ S.			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
$\frac{1}{2}$	0.8 1.5 2.3	0.6 1.3 1.9	61 62 63	47. 2 47. 9 48. 7	38.7 39.3 40.0	121 22 23	93. 5 94. 3 95. 1	76.8 77.4 78.0	181 82 83	139. 9 140. 7 141. 5	114. 8 115. 5 116. 1	241 42 43	186.3 187.1 187.8	152. 9 153. 5 154. 2	
4 5 6 7	3. 1 3. 9 4. 6 5. 4	2.5 3.2 3.8 4.4	64 65 66 67	49. 5 50. 2 51. 0 51. 8	40.6 41.2 41.9 42.5	24 25 26 27	95. 9 96. 6 97. 4 98. 2	78. 7 79. 3 79. 9 80. 6	84 85 86 87	142. 2 143. 0 143. 8 144. 6	116. 7 117. 4 118. 0 118. 6	44 45 46 47	188. 6 189. 4 190. 2 190. 9	154. 8 155. 4 156. 1 156. 7	
8 9 10	6. 2 7. 0 7. 7	5. 1 5. 7 6. 3	68 69 70	52.6 53.3 54.1	43. 1 43. 8 44. 4	28 29 30	$98.9 \\ 99.7 \\ 100.5$	81. 2 81. 8 82. 5	. 88 . 89 . 90	145. 3 146. 1 146. 9	119.3 119.9 120.5	48 49 50	191. 7 192. 5 193. 3	157. 3 158. 0 158. 6	
11 12 13 14	8. 5 9. 3 10. 0 10. 8	7. 0 7. 6 8. 2 8. 9 9. 5	71 72 73 74 75	54. 9 55. 7 56. 4 57. 2	45. 0 45. 7 46. 3 46. 9 47. 6	131 32 33 34 35	101. 3 102. 0 102. 8 103. 6	83. 1 83. 7 84. 4 85. 0 85. 6	191 92 93 94	147. 6 148. 4 149. 2 150. 0	121. 2 121. 8 122. 4 123. 1 123. 7	251 52 53 54	194. 0 194. 8 195. 6 196. 3	159. 2 159. 9 160. 5	
15 16 17 18 19	11. 6 12. 4 13. 1 13. 9 14. 7	10. 2 10. 8 11. 4 12. 1	76 77 78 79	58. 0 58. 7 59. 5 60. 3 61. 1	48. 2 48. 8 49. 5 50. 1	36 37 38 39	104. 4 105. 1 105. 9 106. 7 107. 4	86. 3 86. 9 87. 5 88. 2	95 96 97 98 99	150. 7 151. 5 152. 3 153. 1 153. 8	125. 7 124. 3 125. 0 125. 6 126. 2	55 56 57 58 59	197. 1 197. 9 198. 7 199. 4 200. 2	161. 8 162. 4 163. 0 163. 7 164. 3	
$\begin{array}{c} 20 \\ \hline 21 \\ 22 \end{array}$	$\frac{15.5}{16.2}$ 17.0	$\begin{array}{c} 12.7 \\ \hline 13.3 \\ 14.0 \end{array}$	80 81 82	61. 8 62. 6 63. 4	50.8 51.4 52.0	$\begin{array}{r} 40 \\ \hline 141 \\ 42 \end{array}$	108. 2 109. 0 109. 8	88.8 89.4 90.1	$ \begin{array}{r} 200 \\ \hline 201 \\ 02 \end{array} $	154. 6 155. 4 156. 1	$ \begin{array}{ c c c c c } \hline 126.9 \\ 127.5 \\ 128.1 \\ \hline \end{array} $	$\frac{60}{261}$	$\begin{array}{r} 201.0 \\ \hline 201.8 \\ 202.5 \end{array}$	164. 9 165. 6 166. 2	
23 24 25 26	17. 8 18. 6 19. 3 20. 1	14. 6 15. 2 15. 9 16. 5	83 84 85 86	64. 2 64. 9 65. 7 66. 5	52. 7 53. 3 53. 9 54. 6	43 44 45 46	110. 5 111. 3 112. 1 112. 9	90. 7 91. 4 92. 0 92. 6	03 04 05 06	156. 9 157. 7 158. 5 159. 2	128. 8 129. 4 130. 1 130. 7	63 64 65 66	203.3 204.1 204.8 205.6	166. 8 167. 5 168. 1 168. 7	
27 28 29 30	20. 9 21. 6 22. 4 23. 2	17. 1 17. 8 18. 4 19. 0	87 88 89 90	67. 3 68. 0 68. 8 69. 6	55. 2 55. 8 56. 5 57. 1	47 48 49 50	113. 6 114. 4 115. 2 116. 0	93. 3 93. 9 94. 5 95. 2	07 08 09 10	160. 0 160. 8 161. 6 162. 3	131. 3 132. 0 132. 6 133. 2	67 68 69 70	206. 4 207. 2 207. 9 208. 7	169. 4 170. 0 170. 7 171. 3	
31 ⁻ 32 33 34	24. 0 24. 7 25. 5 26. 3	19.7 20.3 20.9 21.6	91 92 93 94	70. 3 71. 1 71. 9 72. 7	57. 7 58. 4 59. 0 59. 6	151 52 53 54	116. 7 117. 5 118. 3 119. 0	95. 8 96. 4 97. 1 97. 7	211 12 13 14	163. 1 163. 9 164. 7 165. 4	133. 9 134. 5 135. 1 135. 8	271 72 73 74	209.5 210.3 211.0 211.8	171. 9 172. 6 173. 2 173. 8	
35 36 37 38 39	27. 1 27. 8 28. 6 29. 4 30. 1	22. 2 22. 8 23. 5 24. 1 24. 7	95 96 97 98 99	73. 4 74. 2 75. 0 75. 8 76. 5	60. 3 60. 9 61. 5 62. 2 62. 8	55 56 57 58 59	119. 8 120. 6 121. 4 122. 1 122. 9	98. 3 99. 0 99. 6 100. 2 100. 9	15 16 17 18 19	166. 2 167. 0 167. 7 168. 5 169. 3	136. 4 137. 0 137. 7 138. 3 138. 9	75 76 77 78 79	212. 6 213. 4 214. 1 214. 9 215. 7	174. 5 175. 1 175. 7 176. 4 177. 0	
40 41 42 43	$ \begin{array}{r} 30.9 \\ \hline 31.7 \\ 32.5 \\ 33.2 \end{array} $	25. 4 26. 0 26. 6 27. 3	$ \begin{array}{r} 100 \\ \hline 101 \\ 02 \\ 03 \end{array} $	77. 3 78. 1 78. 8 79. 6	63. 4 64. 1 64. 7 65. 3	$\begin{array}{r} 60 \\ \hline 161 \\ 62 \\ 63 \\ \end{array}$	123. 7 124. 5 125. 2 126. 0	101. 5 102. 1 102. 8 103. 4	20 221 22 23	$\begin{array}{r} 170.1 \\ \hline 170.8 \\ 171.6 \\ 172.4 \end{array}$	139. 6 140. 2 140. 8 141. 5	281 82 83	216. 4 217. 2 218. 0	177. 6 178. 3 178. 9	
44 45 46 47	34. 0 34. 8 35. 6 36. 3	27. 9 28. 5 29. 2 29. 8	04 05 06 07	80. 4 81. 2 81. 9 82. 7	66. 0 66. 6 67. 2 67. 9	64 65 66 67	126. 8 127. 5 128. 3 129. 1	104. 0 104. 7 105. 3 105. 9	24 25 26 27	173. 2 173. 9 174. 7 175. 5	142. 1 142. 7 143. 4 144. 0	84 85 86 87	218.8 219.5 220.3 221.1 221.9	179. 5 180. 2 180. 8 181. 4 182. 1	
48 49 50 51	$ \begin{array}{r} 37.1 \\ 37.9 \\ 38.7 \\ \hline 39.4 \end{array} $	$ \begin{array}{r} 30.5 \\ 31.1 \\ 31.7 \\ \hline 32.4 \end{array} $	08 09 10 111	83. 5 84. 3 85. 0 85. 8	68. 5 69. 1 69. 8	68 69 70	129. 9 130. 6 131. 4 132. 2	106. 6 107. 2 107. 8 108. 5	28 29 30 231	$ \begin{array}{r} 176.2 \\ 177.0 \\ 177.8 \\ \hline 178.6 \end{array} $	$144.6 \\ 145.3 \\ 145.9 \\ \hline 146.5$	88 89 90 291	222. 6 223. 4 224. 2 224. 9	182. 7 183. 3 184. 0 184. 6	
52 53 54 55	40. 2 41. 0 41. 7 42. 5	33. 6 33. 6 34. 3 34. 9	12 13 14 15	86. 6 87. 4 88. 1 88. 9	71. 1 71. 7 72. 3 73. 0	72 73 74 75	132. 2 133. 0 133. 7 134. 5 135. 3	109. 1 109. 8 110. 4 111. 0	32 33 34 35	179. 3 180. 1 180. 9	147. 2 147. 8 148. 4	92 93 94	225. 7 226. 5 227. 3 228. 0	185. 2 185. 9 186. 5	
56 57 58 59	43. 3 44. 1 44. 8 45. 6	35. 5 36. 2 36. 8 37. 4	16 17 18 19	89. 7 90. 4 91. 2 92. 0	73.6 74.2 74.9 75.5	76 77 78	136. 0 136. 8 137. 6	111.7 112.3 112.9	36 37 38	181. 7 182. 4 183. 2 184. 0	149. 1 149. 7 150. 4 151. 0	95 96 97 98	228. 8 229. 6 230. 4	187. 1 187. 8 188. 4 189. 0	
60	46. 4	38.1	20	92. 0	76. 1	79 80	138. 4 139. 1	113. 6 114. 2	39 40	184.7 185.5	151. 6 152. 3	300 300	231. 1 231. 9	189. 7 190. 3	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
NE. $\frac{1}{2}$ E. SE. $\frac{1}{2}$ E. NW. $\frac{1}{2}$ W. SW. $\frac{1}{2}$ W. [For $4\frac{1}{2}$										SW. ½ \	Ν.	[Fo	or 4½ Po	ints.	

Difference of Latitude and Departure for 33 Points.

NE. 1 N.

NW. 4 N.

SE. 4 S.

SW. 4 S.

	111	3. 4 11.			11 11 .	4			4	~-			. 4 0.	
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
		0.7	01	45.0	41.0	101	90.7	81.3	101	194 1	121.6	941	178. 6	161.8
1	0.7	0.7	61	45. 2 45. 9	41. 0 41. 6	$\begin{array}{c} 121 \\ 22 \end{array}$	89. 7 90. 4	81. 9	$\begin{array}{c} 181 \\ 82 \end{array}$	134. 1 134. 9	121.0 122.2	$\begin{array}{c c} 241 \\ 42 \end{array}$	179.3	162.5
$\frac{2}{3}$	$egin{array}{c} 1.5 \ 2.2 \end{array}$	$\begin{array}{c c} 1.3 \\ 2.0 \end{array}$	62 63	46.7	42.3	23	91.1	82.6	83	135.6	122. 9	43	180.1	163. 2
3	3.0	$\frac{2.0}{2.7}$	64	47.4	43.0	24	91.9	83. 3	84	136.3	123.6	44	180. 8	163. 9
4 5	3.7	3.4	65	48. 2	43.7	25	92.6	83.9	85	137.1	124. 2	45	181.5	164.5
	4.4	4.0	66	48. 9	44.3	26	93.4	84.6	86	137.8	124. 9	46	182.3	165. 2
6 7	5. 2	4.7	67	49.6	45.0	27	94.1	85.3	87	138.6	125. 6	47	183. 0	165. 9
8	5. 9	5.4	68	50.4	45.7	28	94.8	86.0	88	139. 3	126. 3	48	183.8	166.5
9	6.7	6.0	69	51. 1	46. 3	29	95.6	86.6	89	140.0	126. 9	49	184.5	167. 2
10	7.4	6.7	70	51.9	47.0	30	96.3	87.3	90	140.8	127.6	50	185. 2	167. 9
11	8.2	7.4	$\frac{-70}{71}$	$\frac{52.6}{52.6}$	47.7	131	$\frac{-97.1}{97.1}$	88.0	$\frac{33}{191}$	141.5	128.3	251	186.0	168.6
12	8.9	8. 1	72	53. 3	48.4	32	97.8	88.6	92	142.8	128.9	52	186.7	169. 2
13	9.6	8.7	73	54. 1	49.0	33	98.5	89.3	93	143.0	129.6	53	187.5	169. 9
14	10.4	9.4	74	54.8	49.7	34	99.3	90.0	94	143. 7	130. 3	54	188. 2	170.6
15	11.1	10. 1	75	55. 6	50.4	35	100.0	90.7	95	144.5	131.0	55	188. 9	171.2
16	11.9	10.7	76	56.3	51.0	36	100.8	91.3	96	145.2	131.6	56	189.7	171.9
17	12.6	11.4	77	57.1	51.7	37	101.5	92.0	97	146.0	132.3	57	190.4	172.6
18	13.3	12.1	78	57.8	52.4	38	102.3	92. 7	98	146.7	133.0	58	191.2	173.3
19	14.1	12.8	79	58.5	53.1	39	103.0	93. 3	99	147.4	133. 6	59	191.9	173.9
20	14.8	13.4	80	59.3	53.7	40	103. 7	94.0	200	148. 2	134.3	60	192.6	174.6
$\frac{20}{21}$	15.6	14.1	81	60.0	54.4	141	104.5	94.7	201	148. 9	135.0	261	193.4	175.3
22	16.3	14. 8	82	60.8	55.1	42	105. 2	95. 4	02	149.7	135.7	62	194.1	175.9
23	17.0	15. 4	83	61.5	55.7	43	106. 0	96.0	03	150.4	136. 3	63	194. 9	176.6
24	17.8	16. 1	84	62. 2	56.4	44	106.7	96.7	04	151. 2	137.0	64	195.6	177.3
25	18.5	16.8	85	63. 0	57.1	45	107.4	97.4	05	151.9	137.7	65	196.4	178.0
26	19.3	17.5	86	63. 7	57.8	46	108. 2	98.0	06	152. 6	138.3	66	197.1	178.6
27	20.0	18.1	87	64.5	58.4	47	108.9	98.7	07	153. 4	139.0	67	197.8	179.3
28	20.7	18.8	88	65. 2	59.1	48	109.7	99.4	08	154.1	139.7	68	198.6	180.0
29	21.5	19.5	89	65. 9	59.8	49	110.4	100.1	09	154. 9	140.4	69	199.3	180.6
30	22. 2	20. 1	90	66. 7	60.4	50	111.1	100.7	10	155.6	141.0	70	200.1	181.3
31	23.0	20.8	91	67.4	61.1	151	111.9	101.4	211	156.3	141.7	271	200.8	182.0
32	23. 7	21.5	$9\overline{2}$	68. 2	61. 8	52	112.6	102. 1	12	157.1	142. 4	$7\overline{2}$	201.5	182.7
33	24.5	22. 2	93	68. 9	62.5	53	113.4	102.7	13	157.8	143.0	73	202.3	183.3
34	25. 2	22.8	94	69.6	63.1	54	114.1	103.4	14	158.6	143.7	74	203.0	184.0
35	25.9	23.5	95	70.4	63.8	55	114.8	104.1	15	159.3	144.4	75	203.8	184.7
36	26.7	24. 2	96	71.1	64.5	56	115.6	104.8	16	160.0	145.1	76	204.5	185.4
37	27.4	24.8	97	71.9	65.1	57	116.3	105.4	17	160.8	145.7	77	205. 2	186.0
38	28.2	25.5	98	72.6	65.8	58	117.1	106.1	18	161.5	146.4	78	206.0	186.7
39	28.9	26. 2	99	73.4	66.5	59	117.8	106.8	19	162.3	147. 1	79	206.7	187.4
40	29.6	26. 9	100	74.1	67. 2	60	118.6	107.4	20	163.0	147.7	80	207.5	188.0
41	30.4	27.5	101	74.8	67.8	161	119.3	108.1	221	163.8	148.4	281	208. 2	188.7
42	31. 1	28. 2	02	75.6	68.5	62	120.0	108.8	22	164.5	149.1	82	208.9	189. 4
43	31.9	28. 9	03	76. 3	69.2	63	120.8	109.5	23	165. 2	149.8	83	209.7	190.1
44	32.6	29.5	04	77. 1	69.8	64	121.5	110.1	24	166.0	150.4	84	210.4	190.7
45	33. 3	30.2	05	77.8	70.5	65	122.3	110.8	25	166. 7	151.1	85	211.2	191.4
46	34.1	30.9	06	78.5	71.2	66	123. 0	111.5	26	167.5	151.8	86	211.9	192.1
47	34.8	31.6	07	79.3	71.9	67	123.7	112.2	27	168.2	152.4	87	212.7	192.7
48	35.6	32. 2	08	80.0	72.5	68	124.5	112.8	28	168.9	153.1	88	213.4	193.4
49	36.3	32.9	09	80.8	73.2	69	125.2	113.5	29	169.7	153.8	89	214.1	194.1
50	37.0	33.6	10	81.5	73.9	70	126.0	114.2	30	170.4	154.5	90	214.9	194.8
51	37.8	34.2	111	82. 2	74.5	171	126. 7	114.8	231	171.2	155.1	291	215.6	195. 4.
52	38.5	34.9	12	83. 0	75,2	72	127.4	115.5	32	171.9	155.8	92	216.4	196.1
53	39.3	35.6	13	83.7	75.9	73	128. 2	116. 2	33	172.6	156.5	93	217.1	196.8
54	40.0	36.3	14	84.5	76.6	74	128. 9	116.9	34	173.4	157.1	94	217.8	197.4
55 56	40.8 41.5	36. 9 37. 6	15	85.2	77.2	75 76	129. 7 130. 4	117.5	35	174.1	157.8	95 96	218.6 219.3	198. 1 198. 8
56 57	41. 5	38.3	16 17	86. 0 86. 7	78.6	76 77	130.4	118. 2 118. 9	$\frac{36}{37}$	174.9 175.6	158.5	96	220.1	198. 8
58	42. 2	39.0	17 18	87.4	79. 2	77 78	131. 1	118.9 119.5	38	176. 3	159. 2 159. 8	97 98	220. 1	200. 1
59	43. 7	39.6	19	88. 2	79. 2	79	131. 9	120. 2	39	177.1	160.5	99	220.8	200. 1
60	44.5	40.3	20	88. 9	80.6	80	133. 4	120. 2	40	177.8	161. 2	300	222.3	201.5
00	11.0	10.0	20	00, 9	30.0	00	100.4	120. 9	40	111.0	101.2	000	222. 0	201.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
		<u> </u>	1		1 2300.			1	<u>. </u>		1	1	-	
NE. \(\frac{1}{4}\) E. SE. \(\frac{1}{4}\) E.						N'	W. 1 W.		S	W. 4 W.		[F	or 41 Po	ints.

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TABLE 1.

Difference of Latitude and Departure for 4 Points.

NE. SW. SE. Dist. Dist. Lat. Dep. Dist. Lat. Dep. Lat. Dep. Dist. Lat. Dep. Dist. Lat. Dep. 128.0 0.7 61 43.1 43.1 121 85.6 85.6 181 128.0 0.7 241 170.4 170.4 43.8 128.7 62 43.8 22 86.3 128.7 86.3 1.4 82 1.4 42 171.1 171.123 3 129.4 2.1 2.1 63 44.5 44.5 87.0 87.0 83 129.4 43 171.8 171.8 2.8 2.8 24 87.7 4 64 45.3 45.3 84 130.1 130.1 172.587.7 44 172.53.5 25 5 3.5 65 46.0 46.0 88.4 88.4 85 130.8 130.8 45 173.2173.2 6 4.2 4.2 66 46.7 46.7 26 89.1 89.1 86 131.5131.5 46 173.9 173.9 4.9 27 89.8 132.2 132.2 7 4.9 67 47.447.4 89.8 87 47 174.7 174.7 175. 4 176. 1 8 5.7 5.7 68 48.1 48.1 28 90.590.5 88 132.9 132.9 48 175.4 48.8 48.8 29 69 6.4 6.4 91.291.2133.6133.6 9 89 49 176.130 10 7.1 7.1 70 49.5 49.5 91.9 91.9 90 134.4 134.4 176.8 50 176.8 135.1 11 7.8 7.8 71 50.2 50.2 131 92.6 92.6 135.1 251177.5 177.5 191 8.5 72 50.9 50.9 93.3 135.8 8.5 32 93.3 135.8 52 178.2178.212 92 178. 9 179. 6 178.9 13 9.2 9.2 7351.6 51.6 33 94.0 94.0 93 136.5 136.5 53 74 52.3 94.8 137.2 14 9.9 9.9 52.3 34 94.8 137.2 54 94 179.6 53.0 137.9 15 10.6 10.6 75 53.035 95.595.595 137.9 55 180.3 180.3 11. 3 12. 0 96.2 11.3 76 53.7 53.7 36 96.2 96 138.6 138.6 56 181.0 181.0 16 17 12.0 77 54.4 54.4 37 96.9 96.9 97 139.3 139.3 57 181.7 181.7 18 12.7 12.7 78 55.2 55.2 38 97.6 97.6 98 140.0 140.0 58 182.4 182.4 55.9 140.7 13.4 79 55.9 39 98.398.3 140.7 183.1 19 13.4 99 59 183.1 20 14.1 14.1 80 56.6 56.6 40 99.0 99.0 200 141.4 141.4 60 183.8 183.8 21 14.8 14.8 81 57.3 57.3 141 99.7 99.7 142.1 142.1 261 184.6 201 184.6 100.4 22 15.6 15.6 82 58.0 58.0 100.4 142.8 142.8 62 185.3 185.3 42 02 23 16.3 16.3 83 58.7 58.7 43 101.1 101.1 143.5 143.5 63 186.0 186.0 03 24 59.4 186.7 17.084 59.4 44 144.264 186.7 17.0101.8 101.8 04 144.2 25 17.7 17.7 85 60.1 60.1 45 102.5 102.5 05 145.0 145.0 65 187.4 187.4 18.4 18.4 60.8 103. 2 26 60.8 46 103.2145.7 145.7 188.1 86 06 66 188.1 27 103.9 103.9 19.1 19.1 87 61.561.547 07 146.4 146.4 67 188.8 188.8 62. 2 62. 9 62. 2 62. 9 28 147.1 189.5 19.8 19.8 88 48 104.7 104.7 08 147.1 68 189.5 29 20.5 20.589 49 105.4 105.4 09 147.8 147.8 69 190.2 190.2 30 21.2 21.2 90 63.6 63.6 50 106.1 106.1 10 148.5 148.5 70 190.9 190.9 106.8 64.3 106.8 149.2 31 21.9 21.9 91 64.3 151 211 149.2 271 191.6 191.6 22.6 $\begin{array}{c} 72 \\ 73 \end{array}$ 22.665.1 32 92 65.152 107.5107.5 12 149.9 149.9 192.3 192.3 65.8 13 193.0 193.0 33 23.3 23.3 93 65.8 53 108.2 108.2 150.6 150.6 24.0 24.0 94 66.5 66.554 108.9 108.9 151.3 151.3 74 193.7 193.7 34 14 35 24.7 24.7 25.595 67.2 67.255 109.6 109.6 152.0 152.0 75 76 77 194.5 194.5 15 67.9 110.3 152. 7 195. 2 195.2 36 25.5 96 67.9 56 110.3 152.7 16 26. 2 26.2 153.4 153.4 37 97 68.6 68.6 57 111.0 111.0 17 195.9 195.9 69.3 111.7 38 26.9 26.9 69.3 58 111.7 18 154.1 154.1 78 196.6 196.6 98 27.6 27.6 70.0 112.4 39 99 70.0 59 112.4 19 154.9 154.9 79 197.3 197.3 28.3 28.3 70.7 70.7 113.1 113.1 20 80 198.0 40 100 60 155.6155.6 198.0 71. 4 72. 1 71. 4 72. 1 $\begin{array}{c} 221 \\ 22 \end{array}$ 41 29.0 29.0 101 161 113.8 113.8 156.3 156.3 281 198.7 198.7 42 43 29.7 29.7 114.6 157.0 157.0 02 62 114.6 82 199.4 199.4 30.4 30.4 03 72.8 72.8 115.3 115.3 23 157.7 157.7 83 200.1 63 200.1 73.5 73.5 24 44 31.1 31.1 04 64 116.0 116.0 158.4 158.4 84 200.8 200.8 31. 8 32. 5 116. 7 117. 4 116.7 117.4 159.1 45 31.8 05 74.2 74.2 65 25 159.1 85 201.5 201.5 32. 5 66 26 202. 2 46 06 75.0 75.0 159.8 159.8 86 202.2 27 202: 9 47 33.2 33.2 07 75.7 75.7 67 118.1 118.1 160.5 160.5 87 202.9 28 29 33. 9 203.6 203.6 33.9 08 76.4 76.4 68 118.8 118.8 161.2 88 48 161.2 161.9 204.4 204.4 49 34.6 34.6 09 77.1 77.1 69 119.5119.5 161.9 89 70 35.4 35.4 77.8 77.8 120.2 120.2 30 162.6 205.1 50 10 162.6 90 205.1 36. 1 36. 8 205.8 51 36.1 111 78.5 78.5 171 120.9 120.9 231 163.3 163.3 291 205.8 206. 5 207. 2 207. 9 206.5 79.2 79.2 121.6 121.6 164.0 92 52 36.8 12 72 32 164.0 73 74 122. 3 123. 0 164. 8 165. 5 164.8 165.5 37.5 79.9 122.3 33 53 37.5 13 79.9 93 207.2 38.2 123.0 207.9 80.6 54 38.2 14 80.6 34 94 123.7 123.7 38.9 55 38.9 15 81.3 81.3 75 35 166.2 166.2 95 208.6 208.6 124.5 209.3 39.6 124.5 76 166.9 166.9 209.3 56 39.6 16 82.0 82.0 36 96 57 40.3 40.3 17 82.7 82.7 77 125.2 125.2 37 167.6 167.6 97 210.0 210.0 125.9 125.9 58 41.0 41.0 18 83.4 83.4 78 38 168.3 168.3 98 210.7 210.7 126.6 127.359 41.7 41.7 19 84.1 84.1 79 126.6 39 169.0 169.0 99 211.4 211.4 42.4 84. 9 80 127.3 169.7 169.7 212.1 212.1 60 42.4 20 84.9 300 Dist. Dep. Lat. NW. NE. SE. SW. [For 4 Points.



TABLE 2.

Difference of Latitude and Departure for 1° (179°, 181°, 359°).

Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
1	1.0	0.0	61	61.0	1.1	121	121.0	2.1	181	181.0	3. 2	241	241.0	4.2	
$\frac{2}{3}$	2.0	0.0	62	62.0	1.1	22	122.0	2.1	82	182.0	3. 2	42	242.0	4.2	
	3.0	0.1	63	63.0	1.1	23	123.0	2.1	83	183.0	3. 2	43	243.0	4.2	
4 5	4.0	0.1	64	64.0	1.1	24 25	124.0 125.0	$\begin{array}{c} 2.2 \\ 2.2 \end{array}$	84 85	184. 0 185. 0	3. 2	44	244.0	4.3 4.3	
6	5. 0 6. 0	0.1	65 66	65. 0 66. 0	1. 2	$\frac{25}{26}$	126.0	2. 2	86	186.0	3, 2 3, 2	45 46	245. 0 246. 0	4.3	
7	7.0	0. 1	67	67.0	1.2	27	127.0	2.2	87	187.0	3. 3	47	247.0	4.3	
8	8.0	0. 1	68	68.0	1.2	28	128.0	2.2	88	188.0	3.3	48	248.0	4.3	
9	9.0	0.2	69	69.0	1.2	29	129.0	2.3	89	189.0	3.3	49	249.0	4.3	
10	10.0	0. 2	70	70.0	1.2	30	130.0	2.3	90	190.0	3.3	50	250.0	4.4	
11	11.0	0.2	71	71.0	1. 2 1. 3	131	131.0	2.3	191	191.0	3.3	251	251.0	4.4	
12 13	12. 0 13. 0	0. 2	72 73	72. 0 73. 0	1.3	$\begin{array}{c} 32 \\ 33 \end{array}$	132. 0 133. 0	2.3 2.3	92 93	192. 0 193. 0	3.4	52 53	252. 0 253. 0	4.4 4.4	
14	14.0	0. 2	74	74.0	1.3	34	134.0	2.3	94	194.0	3.4	54	254.0	4.4	
15	15.0	0.3	75	75.0	1.3	35	135.0	2.4	95	195.0	3.4	55	255.0	4.5	
16	16.0	0.3	76	76.0	1.3	36	136.0	2.4	96	196.0	3.4	56	256.0	4.5	
17	17.0	0.3	77	77.0	1.3	37	137.0	2.4	97	197.0	3.4	57	257.0	4.5	
18	18.0	0.3	78	78.0	1.4	38	138.0	2.4	98	198.0	3.5	58	258.0	4.5	
19 20	19. 0 20. 0	0.3	79 80	79. 0 80. 0	1.4	39 40	139. 0 140. 0	2.4 2.4	$\frac{99}{200}$	199.0	3. 5 3. 5	59 60	259. 0 260. 0	4.5 4.5	
21	$\frac{20.0}{21.0}$	$\frac{0.3}{0.4}$	81	81.0	1.4	141	141.0	$\frac{2.4}{2.5}$	$\frac{200}{201}$	201.0	$\frac{3.5}{3.5}$	261	261.0	4.6	
22	$\frac{21.0}{22.0}$	0.4	82	82.0	1.4	42	142.0	2.5	02	202.0	3.5	62	262. 0	4.6	
23	23. 0	0.4	83	83.0	1.4	43	143.0	2.5	03	203.0	3.5	63	263.0	4.6	
24	24.0	0.4	84	84.0	1.5	44	144.0	2.5	04	204.0	3.6	64	264.0	4.6	
25	25.0	0.4	85	85.0	1.5	45	145.0	2.5	05	205.0	3.6	65	265.0	4.6	
	$egin{array}{c c c c c c c c c c c c c c c c c c c $														
	27 27.0 0.5 87 87.0 1.5 47 147.0 2.6 07 207.0 3.6 67 267.0 4.7 28 28.0 0.5 88 88.0 1.5 48 148.0 2.6 08 208.0 3.6 68 268.0 4.7														
	28 28.0 0.5 88 88.0 1.5 48 148.0 2.6 08 208.0 3.6 68 268.0 4.7 29 29.0 0.5 89 89.0 1.6 49 149.0 2.6 09 209.0 3.6 69 269.0 4.7														
30	29 29.0 0.5 89 89.0 1.6 49 149.0 2.6 09 209.0 3.6 69 269.0 4.7 30 30.0 0.5 90 90.0 1.6 50 150.0 2.6 10 210.0 3.7 70 270.0 4.7														
31	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
32	31 31.0 0.5 91 91.0 1.6 151 151.0 2.6 211 211.0 3.7 271 271.0 4.7														
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
34 35	34.0 35.0	0.6	94 95	94. 0 95. 0	1.6 1.7	54 55	154.0	$\frac{2.7}{2.7}$	14	214.0	3.7	74	274.0	4.8	
36	36. 0	0.6	96	96.0	1.7	56	155. 0 156. 0	$\frac{2.7}{2.7}$	15 16	215. 0 216. 0	3. 8 3. 8	75 76	275. 0 276. 0	4.8 4.8	
37	37. 0	0.6	97	97.0	1.7	57	157.0	2.7	17	217.0	3.8	77	277. 0	4.8	
38	38.0	0.7	98	98.0	1.7	58	158.0	2.8	18	218.0	3.8	78	278.0	4.9	
39	39. 0	0.7	99	99.0	1.7	59	159.0	2.8	19	219.0	3.8	79	279.0	4.9	
40	40.0	0.7	100	100.0	1.7	60	160.0	2.8	20	220.0	3.8	80	280.0	4.9	
41 42	$\frac{41.0}{42.0}$	0.7	101	101. 0 102. 0	1.8	161	161.0	2.8	221	221.0	3.9	281	281.0	4.9	
43	43. 0	0.7	02	102.0	1.8 1.8	62 63	162. 0 163. 0	2.8 2.8	$\frac{22}{23}$	$\begin{vmatrix} 222.0\\ 223.0 \end{vmatrix}$	3.9	82 83	282. 0 283. 0	4.9 4.9	
44	44.0	0.8	04	104.0	1.8	64	164.0	2.9	24	224.0	3.9	84	284.0	5.0	
45	45.0	0.8	05	105.0	1.8	65	165.0	2.9	25	225.0	3.9	85	285.0	5.0	
46	46.0	0.8	06	106.0	1.8	66	166.0	2.9	26	226.0	3.9	86	286.0	5.0	
47	47.0	0.8	07	107.0	1.9	67	167.0	2.9	27	227. 0	4.0	.87	287.0	5.0	
48 49	48.0 49.0	0.8	08 09	108. 0 109. 0	1.9 1.9	68 69	168. 0 169. 0	$\begin{array}{c c} 2.9 \\ 2.9 \end{array}$	$\frac{28}{29}$	228. 0	4.0	88	288.0	5.0	
50	50.0	0.9	10	110.0	1.9	70	170.0	3.0	30	229. 0 230. 0	4.0	89 90	289. 0	5. 0 5. 1	
51	51.0	0.9	111	111.0	1.9	171	171.0	3.0	231	231.0	4.0	291	291.0	5. 1	
52	52.0	0.9	12	112.0	2.0	72	172.0	3.0	32	232.0	4.0	92	292.0	5. 1	
53	53.0	0.9	13	113.0	2.0	73	173.0	3.0	33	233.0	4.1	93	293.0	5.1	
54	54.0	0.9	14	114.0	2.0	74	174.0	3.0	34	234.0	4.1	94	294.0	5.1	
55 56	55. 0 56. 0	1.0 1.0	15 16	115. 0 116. 0	$\begin{array}{c c} 2.0 \\ 2.0 \end{array}$	75 76	175. 0 176. 0	3. 1 3. 1	. 35	235. 0 236. 0	4.1	95 96	295.0	5. 1 5. 2	
57	57. 0	1.0	17	117.0	2.0	77	177.0	3.1	36 37	236. 0	4.1	96 97	296. 0 297. 0	5. 2	
58	58. 0	1.0	18	118.0	2.1	78	178.0	3. 1	38	238.0	4. 2	98	298.0	5. 2	
59	59.0	1.0	19	119.0	2.1	79	179.0	3.1	39	239.0	4. 2	99	299.0	5.2	
60	60.0	1.0	20	120.0	2.1	80	180. 0	3.1	40	240.0	4.2	300	300.0	5.2	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
				•			91°, 269°						1		
						00 10	, 400	9 411	1 .						

89° (91°, 269°, 271°).

Difference of Latitude and Departure for 1° (179°, 181°, 359°).

			Differ	ence or .	Lautuu	e and	Departi	116 101	1 (1	, 101	, 000	,· 			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
301	301.0	5.3	361	360.9	6.3	421	420. 9	7.3	481	480.9	8.4	541	540.9	9.5	
02	302.0	5.3	62	361.9	6.3	22	421.9	7.4	82	481.9	8.4	42	541.9	9.5	
03	303.0	5.3 5.3	63	362. 9 363. 9	6. 3 6. 4	23 24	422. 9 423. 9	7.4	83 84	482. 9 483. 9	$\begin{bmatrix} 8.5 \\ 8.5 \end{bmatrix}$	43 44	542. 9 543. 9	$9.5 \\ 9.5$	
04 05	304. 0 305. 0	5.3	$\begin{array}{c} 64 \\ 65 \end{array}$	364.9	6.4	25	424.9	7.4	85	484.9	8.5	45	544.9	9.5	
06	306.0	5.3	66	365. 9	6.4	26	425.9	7.4	86	485.9	8.5	46	545. 9	9.5	
07	307.0	5.4	67	366.9	6.4	27	426.9	7.4	87	486. 9	8.5	47	546.9	9.6	
08	308.0	5.4	68	367.9	6.4	28	427.9	7.5	88	487. 9 488. 9	8.6	48	547. 9 548. 9	9.6	
09 10	309. 0 310. 0	5. 4 5. 4	69 70	368.9 369.9	$\begin{array}{ c c } 6.4 \\ 6.5 \end{array}$	29 30	428. 9 429. 9	7.5 7.5	89 90	489.9	8. 6 8. 6	49 50	549.9	9.6 9.6	
311	311.0	$\frac{5.4}{5.4}$	371	370. 9	$\frac{0.0}{6.5}$	431	430.9	7.5	491	490.9	8.6	551	550.9	9.6	
12	312.0	5.4	72	371.9	6.5	32	431.9	7.5	92	491.9	8.6	52 '	551.9	9.6	
13	313.0	5.5	73	372.9	6.5	33	432.9	7.5	93	492.9	8.7	53	552. 9	9.7	
14	314.0	5.5	74	373.9	$\begin{array}{c} 6.5 \\ 6.5 \end{array}$	34 35	433.9	7. 6 7. 6	94 95	493. 9 494. 9	8.7 8.7	54 55	553. 9 554. 9	9.7 9.7	
15 16	315. 0 316. 0	5. 5 5. 5	75 76	374.9 375.9	6.6	36	434. 9 435. 9	7.6	96	495. 9	8.7	56	555.9	9.7	
17	317.0	5. 5	77	376.9	6.6	37	436.9	$7.\overset{\circ}{6}$	97	496.9	8.7	57	556.9	9.7	
18	318.0	5.5	78	377.9	6.6	38	437.9	7.6	98	497.9	8.7	58	557. 9	9.7	
19	319.0	5.6	79	378.9	6.6	39	438.9	7.7	99	498.9	8.8	59	558. 9	9.8	
20	$\frac{320.0}{321.0}$	$\frac{5.6}{5.6}$	$\frac{80}{381}$	$\frac{379.9}{380.9}$	$\frac{6.6}{6.7}$	$\frac{40}{441}$	$\frac{439.9}{440.9}$	$\frac{7.7}{7.7}$	500 501	499. 9 500. 9	8.8	$\frac{60}{561}$	$\frac{559.9}{560.9}$	$\frac{9.8}{9.8}$	
$\begin{array}{c} 321 \\ 22 \end{array}$	$\begin{vmatrix} 321.0 \\ 322.0 \end{vmatrix}$	5.6	82	381.9	6.7	42	441.9	7.7	02	501.9	8.8	62	561. 9	9.8	
23	323.0	5.6	83	382.9	6.7	43	442.9	7.7	03	502.9	8.8	63	562.9	9.8	
24	324.0	5.6	84	383.9	6. 7	44	443.9	7.7	04	503. 9	8.8	64	563. 9	9.8	
25	325.0	5.7	85	384.9	6.7	45	444.9	7.8	05	504. 9 505. 9	8.8	65	564.9	9.9	
26 27	326. 0	5.7 5.7	86 87	385. 9 386. 9	6.7	46 47	445. 9 446. 9	7.8 7.8	06 07	506. 9	8.9	66 67	565.9 566.9	$9.9 \\ 9.9$	
	28 328.0 5.7 88 387.9 6.8 48 447.9 7.8 08 507.9 8.9 68 567.9 9.9														
29	29 329, 0 5, 7 89 388, 9 6, 8 49 448, 9 7, 8 09 508, 9 8, 9 69 568, 9 9, 9														
_30	30 330.0 5.8 90 389.9 6.8 50 449.9 7.8 10 509.9 8.9 70 569.9 9.9														
331	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
34	33 333.0 5.8 93 392.9 6.9 53 452.9 7.9 13 512.9 9.0 73 572.9 10.0 34 333.9 5.8 94 393.9 6.9 54 453.9 7.9 14 513.9 9.0 74 573.9 10.0														
35	334.9	5.8	95	394.9	6.9	55	454.9	7.9	15	514.9	9.0	75	574.9	10.0	
36 37	335. 9 336. 9	5. 9 5. 9	96 97	395. 9 396. 9	6. 9 6. 9	56 57	455. 9 456. 9	8. 0 8. 0	16 17	515. 9 516. 9	$9.0 \\ 9.1$	76 77	575. 9 576. 9	10.0 10.1	
38	337.9	5.9	98	397.9	6.9	58	457.9	8.0	18	517.9	9.1	78	577.9	10. 1	
39	338. 9	5. 9	99	398.9	7.0	59	458.9	8.0	19	518.9	9.1	79	578.9	10.1	
40	339. 9	5.9	400	399.9	7.0	60	459.9	8.0		519.9	9.1	80	579.9	10.1	
341	340.9	6.0	401	400.9	7.0	461	460. 9	8.0	$\begin{array}{c} 521 \\ 22 \end{array}$	520. 9 521. 9	9. 1 9. 1	581 82	580. 9 581. 9	10.1	
42 43	341. 9 342. 9	6. 0 6. 0	02 03	402.9	7.0	62 63	461.9 462.9	8. 1 8. 1	23	522.9	9. 2	83	582. 9	10. 1 10. 2	
44	343. 9	6.0	04	403. 9	7. 1	64	463.9	8. 1	24	523.9	9.2	84	583.9	10.2	
45	344.9	6.0	05	404.9	7.1	65	464.9	8.1	25	524.9	9.2	85	584.9	10.2	
46	345. 9	6.0	06	405.9	7.1	66	465.9	8.1	$\frac{26}{27}$	525. 9 526. 9	9. 2 9. 2	86 87	585.9	10. 2 10. 2	
47 48	346. 9 347. 9	$6.1 \\ 6.1$	07 08	406.9 407.9	7.1 7.1	67 68	466. 9 467. 9	8. 1 8. 2	28	527.9	9. 2	88	586. 9 587. 9	10. 2	
49	348.9	6.1	09	408.9	7.1	69	468.9	8. 2	29	528.9	9.3	89	588. 9	10.3	
50	349.9	6.1	10	409.9	7.2	70	469.9	8.2	30	529.9	9.3	90	589.9	10.3	
351	350.9	6.1	411	410.9	7.2	471	470.9	8.2	531	530.9	9.3	591	590.9	10.3	
52 53	351.9 352.9	6.1	12 13	411.9	7. 2 7. 2.	72 73	471. 9 472. 9	8. 2 8. 2	32 33	531. 9 532. 9	9.3 9.3	92 93	591. 9 592. 9	10.3 10.3	
54	353. 9	6. 2 6. 2	14	413.9	7.2	74	473.9	8.3	34	533. 9	9.3	94	593.9	10.3	
5 5	354.9	6.2	15	414.9	7.2	75	474.9	8.3	35	534.9	9.4	95	594.9	10.4	
56 57	355. 9	6.2	16	415.9	7.3	76 77	475.9	8.3	36 37	535.9	9.4	96	595. 9 596. 9	10.4	
58	356. 9 357. 9	6. 2 6. 2	17 18	416.9	7.3 7.3	78	476.9 477.9	8.3 8.3	38	536. 9 537. 9	9. 4 9. 4	97 98	597.9	10. 4 10. 4	
59	358.9	6.3	19	418.9	7.3	79	478.9	8.4	39	538.9	9.4	99	598.9	10.4	
60	359. 9	6.3	20	419.9	7.3	80	479.9	8.4	40	539. 9	9.4	600	599.9	10.5	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
						89° (9	1°, 269°	. 271°)							

89° (91°, 269°, 271°).

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TABLE 2.

Difference of Latitude and Departure for 2° (178°, 182°, 358°).

	,						- 2 opur		- (-	, 102	, 500	,·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.0	61	61.0	2.1	121	120.9	4.2	181	180.9	6.3	241	240.9	8.4
2	2.0	0.1	62	62.0	2.2	22	121.9	4.3	82	181. 9	6.4	$4\overline{2}$	241.9	8.4
3	3.0	0.1	63	63.0	2.2	23	122.9	4.3	83	182.9	6.4	43	242.9	8.5
4	4.0	0.1	64	64.0	2. 2	24	123.9	4.3	84	183. 9	6.4	44	243.9	8.5
5	5.0	0.2	65	65.0	2.3	25	124.9	4.4	85	184.9	6.5	45	244. 9	8.6
6 7	6.0	0.2	66	66.0	$\begin{array}{c} 2.3 \\ 2.3 \end{array}$	26	125. 9	4.4	86	185.9	6.5	46	245.9	8.6
8	7. 0 8. 0	$0.2 \\ 0.3$	67 68	67. 0 68. 0	2. 3	$\begin{array}{c} 27 \\ 28 \end{array}$	126. 9 127. 9	4.4	87 88	186. 9 187. 9	6.5	47 48	246.8	8.6
9	9.0	0.3	69	69.0	2.4	29	128.9	4.5	89	188.9	6.6	49	248.8	8.7
10	10.0	0.3	70	70.0	$\frac{2.4}{2.4}$	30	129.9	4.5	90	189.9	6.6	50	249.8	8.7
11	11.0	0.4	71	71.0	2.5	131	130.9	4.6	191	190.9	6.7	251	250.8	8.8
12	12.0	0.4	72	72.0	2.5	32	131.9	4.6	92	191.9	6.7	52	251.8	8.8
13	13.0	0.5	73	73.0	2.5	33	132.9	4.6	93	192. 9	6.7	53	252.8	8.8
14	14.0	0.5	74	74.0	2.6	34	133.9	4.7	94	193. 9	6.8	54	253.8	8.9
15	15.0	0.5	75	75.0	2.6	35	134.9	4.7	95	194.9	6.8	55	254.8	8.9
16	16.0	0.6	76	76.0	$\begin{array}{ c c c } 2.7 \\ 2.7 \end{array}$	36	135.9	4.7	96	195. 9	6.8	56	255.8	8.9
17 18	17. 0 18. 0	0.6 0.6	77 78	77. 0 78. 0	2.7	37 38	136. 9 137. 9	4.8	97 98	196. 9 197. 9	6. 9 6. 9	57 58	256.8 257.8	9. 0 9. 0
19	19.0	0.7	79	79.0	2.8	39	138. 9	4.9	99	198.9	6.9	59	258.8	9.0
20	20.0	0.7	80	80.0	2.8	40	139.9	4.9	200	199.9	7.0	60	259.8	9.1
21	21.0	0.7	81	81.0	2.8	141	140.9	4.9	201	200.9	7.0	261	260.8	9.1
22	22.0	0.8	82	82.0	2.9	42	141.9	5.0	02	201. 9	7. 0	62	261.8	9.1
23	23.0	0.8	83	82.9	2.9	43	142.9	5.0	03	202.9	7.1	63	262.8	9.2
24	24.0	0.8	84	83.9	2.9	44	143.9	5.0	04	203.9	7.1	64	263.8	9.2
25	25.0	0.9	85	84.9	3.0	45	144.9	5.1	05	204.9	7. 2	65	264.8	9.2
26	26.0	0.9	86	85.9	3.0	46	145.9	5.1	06	205. 9	7.2	66	265.8	9.3
27 28	$27.0 \\ 28.0$	0.9 1.0	87 88	86. 9 87. 9	$\begin{array}{c} 3.0 \\ 3.1 \end{array}$	47 48	$146.9 \\ 147.9$	5. 1 5. 2	07 08	206. 9 207. 9	7. 2 7. 3	67	266.8 267.8	9.3
29	29.0	1.0	89	88.9	3.1	49	148. 9	5. 2	09	208.9	7.3	68 69	268.8	9. 4 9. 4
30	30.0	1.0	90	89. 9	3. 1	50	149.9	5. 2	10	209. 9	7.3	70	269.8	9.4
31	31.0	1.1	91	90.9	3. 2	151	150. 9	5.3	211	210.9	7.4	271	270.8	9.5
32	32.0	1.1	$9\overline{2}$	91. 9	3. 2	$5\overline{2}$	151.9	5.3	12	211. 9	7.4	$7\hat{2}$	271.8	9.5
33	33.0	1.2	93	92.9	3. 2	53	152.9	5.3	13	212.9	7.4	73	272.8	9.5
34	34.0	1.2	94	93. 9	3.3	54	153.9	5.4	14	213. 9	7.5	74	273.8	9.6
35	35.0	1.2	95	94.9	3.3	55	154.9	5.4	15	214.9	7.5	75	274.8	9.6
36 37	36. 0 37. 0	1.3 1.3	96 97	95. 9 96. 9	3.4	56 57	155. 9 156. 9	5. 4 5. 5	16 17	215. 9 216. 9	7.5 7.6	76 77	275.8 276.8	9.6
38	38.0	1.3	98	97. 9	3.4	58	157.9	5.5	18	217. 9	7.6	78	277.8	9.7
39	39.0	1.4	99	98. 9	3.5	59	158.9	5.5	19	218. 9	7.6	79	278.8	9.7
40	40.0	1.4	100	99.9	3.5	60	159.9	5.6	20	219.9	7.7	80	279.8	9.8
41	41.0	1.4	101	100.9	3.5	161	160.9	5.6	221	220.9	7.7	281	280.8	9.8
42	42.0	1.5	02	101.9	3.6	62	161.9	5.7	22	221.9	7.7	82	281.8	9.8
43	43.0	1.5	03	102.9	3.6	63	162. 9	5. 7	23	222. 9	7.8	83	282.8	9.9
44	44.0	1.5	04	103. 9	3.6	64	163. 9	5.7	24	223. 9	7.8	84	283.8	9.9
45	45.0	$1.6 \\ 1.6$	05 06	104. 9 105. 9	$\begin{array}{c c} 3.7 \\ 3.7 \end{array}$	65 66	164. 9 165. 9	5.8 5.8	$\begin{array}{c} 25 \\ 26 \end{array}$	224. 9 225. 9	7.9	85	284.8	9.9
46	$\begin{array}{c c} 46.0 \\ 47.0 \end{array}$	1.6	06	106. 9	3.7	66 67	166. 9	5.8	$\frac{26}{27}$	226. 9	7.9	86 87	285. 8 286. 8	10.0 10.0
48	48.0	1.7	08	107.9	3.8	68	167. 9	5.9	28	227. 9	8.0	88	287.8	10.0
49	49.0	1.7	09	108.9	3.8	69	168.9	5.9	29	228.9	8.0	89	288.8	10.1
50	50.0	1.7	10	109.9	3.8	70	169.9	5.9	30	229.9	8.0	90	289.8	10.1
51	51.0	1.8	111	110.9	3.9	171	170.9	6.0	231	230. 9	8.1	291	290.8	10.2
52	52.0	1.8	12	111.9	3.9	72	171.9	6.0	32	231.9	8.1	92	291.8	10.2
53	53.0	1.8	13	112.9	3.9	73	172.9	6.0	33	232.9	8.1	93	292.8	10.2
54	54.0	1.9	14	113.9	4.0	74	173.9	6.1	34	233. 9	8.2	94	293.8	10.3
55	55. 0 56. 0	$1.9 \\ 2.0$	15 16	114. 9 115. 9	4. 0 4. 0	75 76	174. 9 175. 9	$6.1 \\ 6.1$	35 36	234. 9 235. 9	8. 2 8. 2	95 96	294. 8 295. 8	10.3 10.3
57	57.0	2.0	17	116.9	4.1	77	176. 9	6. 2	37	236. 9	8.3	97	296.8	10.3
58	58.0	2.0	18	117.9	4.1	78	177. 9	6. 2	38	237. 9	8.3	98	297.8	10.4
59	59.0	2.1	19	118.9	4. 2	79	178.9	6. 2	39	238. 9	8.3	99	298.8	10.4
60	60.0	2. 1	20	119.9	4.2	80	179.9	6.3	40	239.9	8.4	300	299.8	10.5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
-						000 (0	00 0000	0700)				·		

88° (92°, 268°, 272°).

TABLE 2.

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Difference of Latitude and Departure for 2° (178°, 182°, 358°).

ı				Diner	ence or i	Daniu	e and	Departi	110 101	2 (1.	0,102	, 000	·			
١	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
	301	300.8	10.5	361	360.8	12.6	421	420, 8	14.7	481	480.7	16.8	541	540.7	18.9	
ı	02	301.8	10.5	62	361.8	12.6	22	421.8	14.7	82	481.7	16.8	42	541.7	18.9	
1	03	302.8	10.6	63	362.8	12.7	23	422.8	14.7	83	482.7	16.8	43	542.7	18.9	
ı	04	303.8	10.6	64	363.8	12.7	24	423.8	14.8	84	483.7	16.9	44	543.7	19.0	
ı	05	304.8	10.6	65	364.8	12.7	25	424.8 425.7	14.8	85	484. 7 485. 7	16.9 16.9	45 46	$544.7 \\ 545.7$	19. 0 19. 0	
ı	06	305.8	10.7 10.7	66 67	365. 8 366. 8	12.8 12.8	26 27	426.7	$14.9 \\ 14.9$	86 87	486.7	17.0	47	546.7	19.1	
	07 08	306.8 307.8	10.7	68	367.8	12.8	28	427.7	14.9	88	487. 7	17.0	48	547.7	19.1	
ı	09	308.8	10.8	69	368.8	12.9	29	428.7	15.0	89	488.7	17.0	49	548.7	19.1	
1	10	309.8	10.8	70	369.8	12.9	30	429.7	15.0	90	489.7	17.1	50	549.7	19.2	
I	311	310.8	10.8	371	370.8	12.9	431	430. 7	15.0	491	490.7	17.1	551	550.7	19.2	
ı	12	311.8	10.9	72	371.8	$13.0 \\ 13.0$	32 33	431. 7 432. 7	$15.1 \\ 15.1$	92 93	491.7 492.7	$\begin{array}{ c c }\hline 17.1\\17.2\\\end{array}$	52 53	551.7 552.7	19. 2 19. 3	
ı	13 14	312. 8 313. 8	10.9 10.9	73 74	$372.8 \\ 373.8$	13.0	34	433.7	15.1 15.1	94	493.7	17. 2	54	553.7	19.3	
ı	15	314.8	11.0	75	374.8	13. 1	35	434.7	15. 2	95	494.7	17.2	55	554.7	19.3	
1	16	315.8	11.0	76	375.8	13.1	36	435.7	15.2	96	495.7	17.3	56	555.7	19.4	
-	17	316.8	11.0	77	376.8	13.1	37	436.7	15.2	97	496. 7	17.3	57	556.7	19.4	
ı	18	317.8	11.1	78	377.8	13.2	38	437.7	15.3	98	497.7	17.3 17.4	58 59	557. 7 558. 7	19.4 19.5	
1	19 20	318.8 319.8	$11.1 \\ 11.2$	79 80	378. 8 379. 8	$13.2 \\ 13.2$	39 40	438. 7 439. 7	15.3 15.3	99 500	498. 7 499. 7	17.4	60	559.7	19.5	
ŀ	$\frac{20}{321}$	$\frac{319.8}{320.8}$	11.2	381	380.8	13. 3	441	440.7	15.4	501	500.7	17.5	561	560.7	19.5	
I	22	321.8	11.2	82	381.8	13.3	42	441.7	15.4	02	501.7	17.5	62	561.7	19.6	
ı	23	322.8	11.3	83	382.8	13.3	43	442.7	15.4	03	502.7	17.5	63	562. 7	19.6	
ı	24	323.8	11.3	84	383.8	13.4	44	443.7	15.5	04	503.7	17.6	64	563. 7	19.6	
ı	25	26 325, 8 11, 4 86 385, 8 13, 5 46 445, 7 15, 6 06 505, 7 17, 6 66 565, 7 19, 7														
ı		27 326.8 11.4 87 386.8 13.5 47 446.7 15.6 07 506.7 17.7 67 566.7 19.7														
ı		28 327.8 11.4 88 387.8 13.5 48 447.7 15.6 08 507.7 17.7 68 567.7 19.8														
ı	29	29 328.8 11.5 89 388.8 13.6 49 448.7 15.7 09 508.7 17.7 69 568.7 19.8														
L		30 329.8 11.5 90 389.8 13.6 50 449.7 15.7 10 509.7 17.8 70 569.7 19.9														
ı	331	330.8	11.5	391	390.8	13.6	451	450.7	15. 7 15. 8	511	510. 7 511. 7	17.8	571	570.7	19. 9 19. 9	
١	32 33	331. 8 332. 8	11.6 11.6	92 93	391. 8 392. 8	13. 7 13. 7	52 53	451. 7 452. 7	15.8	12 13	511.7	17.8 17.9	72 73	571. 7 572. 7	20.0	
1	34	333.8	11.6	94	393.8	13. 7	54	453. 7	15.8	14	513.7	17.9	74	573.6	20.0	
1	35	334.8	11.7	95	394.8	13.8	55	454.7	15.9	15	514.7	17.9	75	574.6	20.0	
ı	36	335.8	11.7	96	395.8	13.8	56	455.7	15.9	16	515.7	18.0	76	575.6	20.1	
ı	37	336. 8 337. 8	11.7 11.8	97 98	396.8 397.8	13. 8 13. 9	57 58	456. 7 457. 7	15. 9 16. 0	17 18	516. 7 517. 7	18. 0 18. 1	77 78	576.6 577.6	20.1 20.1	
ı	38 39	338.8	11.8	99	398.8	13. 9	59	458.7	16.0	19	518.7	18.1	79	578.6	20. 2	
ł	40	339.8	11.9	400	399.8	13.9	60	459.7	16.0	20	519.7	18.1	80	579.6	20. 2	
ľ	341	340.8	11.9	401	400.8	14.0	461	460.7	16.1	521	520.7	18.2	581	580.6	20. 2	
1	42	341.8	11.9	02	401.8	14.0	62	461.7	16.1	22	521.7	18. 2	82	581.6	20.3	
1	43	342.8	12.0	03	402.8	14.0	63	462.7	16.1	23	522.7	18.2	83	582.6	20. 3 20. 3	
	44 45	343.8 344.8	$12.0 \\ 12.0$	04 05	403.8 404.8	14.1 14.1	64 65	463. 7 464. 7	$16.2 \\ 16.2$	$\begin{array}{c} 24 \\ 25 \end{array}$	523.7 524.7	18.3 18.3	84 85	583.6 584.6	20.3	
	46	345.8	12.1	06	405.8	14. 2	66	465.7	16. 2	26	525.7	18.4	86	585.6	20.4	
	47	346.8	12.1	07	406.8	14. 2	67	466.7	16.3	27	526.7	18.4	87	586.6	20.4	
I	48	347.8	12.1	08	407.8	14.2	68	467.7	16.3	28	527.7	18.4	88	587.6	20.5	
	49 50	348.8	$12.2 \\ 12.2$	09 10	408. 8 409. 8	14.3 14.3	69	468.7	16.4	29 30	528.7 529.7	18. 5 18. 5	89 90	588. 6 589. 6	$20.5 \\ 20.5$	
ł	351	349. 8 350. 8	$\frac{12.2}{12.2}$	$\frac{10}{411}$	410.8	14.3	$\frac{70}{471}$	$\frac{469.7}{470.7}$	$\frac{16.4}{16.4}$	531	$\frac{529.7}{530.7}$	18.5	591	590.6	$\frac{20.6}{20.6}$	
	52	351.8	12. 2		410.8	14. 3		470.7		$\frac{331}{32}$	531.7	18.6		591.6		
	53	352.8	12.3	13	412.8	14.4	73	472.7	16.5	33	532.7	18.6	93	592.6	20.6	
J	54	353.8	12.3	14	413.8	14.4	74	473.7	16.5	34	533.7	18.6	94	593.6	20.7	
	55	354.8	12.4	15	414.8	14.5	75	474.7	16.6	35	534.7	18.7	95	594.6	20.7	
	56 57	355.8 356.8	12. 4 12. 4	16 17	415. 8 416. 8	14.5 14.5	76 77	475. 7 476. 7	16.6 16.6	36 37	535. 7 536. 7	18.7 18.7	96 97	595. 6 596. 6	20.7 20.8	
	58	357.8	12.5	18	417.8	14.6	78	477.7	16. 7	38	537.7	18.8	98	597.6	20.8	
ı	59	358.8	12.5	19	418.8	14.6	79	478.7	16.7	39	538.7	18.8	99	598.6	20.8	
	60	359.8	12.5	20	419.8	14.6	80	479.7	16.7	40	539. 7	18.8	600	599.6	20.9	
	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
		ј 20р.	1	1 2130.	Dop.	1		000 969			Дор.	1	2 4500	Dop.	24406	

88° (92°, 268°, 272°).

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TABLE 2.

Difference of Latitude and Departure for 3° (177°, 183°, 357°).

Dist				Dine	ence or	Lauru	ie am	Depart	ure for	0 (1	11, 100	, 507	٫.		
$ \begin{array}{c} 2 \\ 3 \\ 3 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
4 4.0 0.2 64 63.9 3.3 24 123.8 6.5 84 183.7 9.6 44 243.7 123.8 6.5 5.5 0.3 66 64.9 3.5 24.7 123.8 6.6 6.0 0.3 66 66.9 3.5 24. 126.8 6.6 86 185.7 9.7 46 245.7 12.8 8 6.0 0.4 68 67.0 9.3 6 22 125.8 6.6 8 61 85.7 186.7 9.7 46 245.7 12.9 8 8.0 0.4 68 67.0 9.3 6 29 128.8 6.8 9.9 188.7 9.8 47 244.7 12.8 8 6.5 8 0.0 0.5 69 68.9 3.6 29 128.8 6.8 9.9 188.7 9.9 40 244.7 13.0 10.1 0.0 0.5 70 69.9 3.7 30 129.8 6.8 9.9 188.7 9.9 40 249.7 13.0 11.1 11.0 0.6 71 70.9 3.7 131 130.8 6.9 11.1 11.0 0.6 71 70.9 3.7 131 130.8 6.9 11.1 11.0 0.6 71 70.9 3.7 131 130.8 6.9 11.1 11.0 0.6 71 70.9 3.7 131 130.8 6.9 11.1 11.0 0.5 1.0 0.6 71 70.9 3.7 131 130.8 6.9 11.1 11.0 0.5 1.0 0.6 71 70.9 3.7 131 130.8 6.9 12.1 10.0 0.5 12.5 1.7 13.1 13.1 13.0 0.7 73 72.9 3.8 33 132.8 7.0 93 192.7 10.1 53 252.7 13.2 14 14.0 0.7 74 73.9 3.9 34 133.8 7.0 94 193.7 10.2 55 252.7 13.2 14 14.0 0.7 74 73.9 3.9 35 134.8 8.7 1.9 95 194.7 10.2 55 252.7 13.2 14 14.0 0.7 74 73.9 3.9 35 134.8 8.7 1.9 91 190.7 10.2 55 252.7 13.2 14 14.0 0.7 74 73.9 3.9 35 134.8 8.7 1.9 91 194.7 10.2 55 252.7 13.2 13.1 13.0 0.9 77 76.9 4.0 36 135.8 7.1 96 195.7 10.3 56 255.6 13.5 18 18.0 0.9 78 77.9 4.1 33 137.8 7.2 98 197.7 10.2 55 255.6 13.5 18 18.0 0.9 78 77.9 4.1 33 137.8 7.2 98 197.7 10.4 55 255.6 13.5 18 18.0 0.9 78 77.9 4.1 38 137.8 7.2 98 197.7 10.4 56 255.6 13.5 18 18.0 0.9 78 77.9 4.1 38 137.8 7.2 98 197.7 10.4 56 255.6 13.5 18 18 18 0.0 1.0 79 78.9 4.1 38 137.8 7.2 98 197.7 10.4 56 255.6 13.5 18 12.2 1.0 1.1 81 80.9 4.2 40 133.8 7.7 9 10.7 10.5 60 259.6 13.5 12 22.2 0 1.2 82 81.9 4.3 42 141.8 7.4 02 201.7 10.6 62 266.6 13.5 22.2 1.2 82 81.9 4.3 42 141.8 7.4 02 201.7 10.6 62 266.6 13.5 22.2 1.2 82 81.9 4.3 42 141.8 7.4 02 201.7 10.6 62 266.6 14.0 28 22.0 1.2 82 81.9 4.3 42 141.8 7.4 02 201.7 10.6 62 266.6 14.0 28 22.0 1.2 88 8.9 4.4 44 143.8 7.7 0 92 20.7 10.7 10.8 66 256.6 13.5 22.7 11.1 13.3 64 8.9 4.9 4.3 42 141.8 7.7 0 92 20.7 10.7 10.6 62 266.6 14.0 28 22.0 1.2 88 8.9 4.4 4 141.8 8.7 7.0 92 20.7 10.9 68 256.6 13.5 24.7 11.1 11.1 11.1 11.1 11.1 11.1 11.1 1	2	2.0	0.1	62	61.9	3. 2	22	121.8	6.4	82	181.8	9.5	42	241.7	12.7
6 6. 0 0. 3 66 65.9 3.5 26 125.8 6.6 86 185.7 9.7 46 245.7 12.9 8 8.0 0.4 68 67.9 3.6 227 126.8 6.6 87 186.7 9.8 47 246.7 12.9 9 8.0 0.5 69 68.9 3.6 29 128.8 6.8 89 188.7 9.8 48 247.7 13.0 10 10.0 0.5 70 69.9 3.7 30 129.8 6.8 9 188.7 9.9 49 249.7 13.0 11 11 11.0 0.6 71 70.9 3.7 131 130.8 6.9 91 190.7 10.0 251 250.7 13.1 12 12.0 0.6 71 70.9 3.8 33 131.8 6.9 92 191.7 10.0 251 250.7 13.1 13 13.0 0.7 73 72.9 3.8 33 132.8 7.0 94 193.7 10.0 251 250.7 13.1 13 13.0 0.7 73 72.9 3.8 33 132.8 7.0 94 193.7 10.2 55 251.7 13.2 14 14.0 0.7 74 73.0 3.0 34 133.8 7.0 94 193.7 10.2 55 4253.7 13.3 16 16.0 0.8 76 75.4 9 3.9 35 134.8 7.1 96 195.7 10.2 55 251.7 13.3 16 16.0 0.8 76 75.4 9 3.9 35 134.8 7.1 96 195.7 10.3 56 255.6 13.5 18 18.0 0.9 78 77.9 4.0 37 138.8 87.2 99 198.7 10.3 56 255.6 13.5 18 18.0 0.9 78 77.9 4.1 33 138.8 7.2 99 198.7 10.4 58 255.6 13.5 18 18.0 0.9 78 77.9 4.1 13 31 138.8 7.2 99 198.7 10.4 58 257.6 13.5 19 19.0 1.0 10.3 57 256.6 13.5 18 18.0 0.9 78 77.9 4.1 13 31 138.8 7.3 200 199.7 10.4 58 257.6 13.5 18 18.0 0.9 78 77.9 4.1 13 31 138.8 7.3 200 199.7 10.4 58 257.6 13.5 18 18.0 0.9 78 77.9 4.1 13 31 138.8 7.3 200 199.7 10.4 58 257.6 13.5 18 12.0 1.0 1.0 85 25.8 13.5 18 12.0 1.0 1.0 85 25.8 13.5 18 18.0 1.0 1.0 87 78.9 4.1 130 138.8 7.3 200 199.7 10.5 60 259.6 13.5 18 12.0 1.1 88 80.9 4.2 141 140.8 7.4 201 200.7 10.5 60 259.6 13.5 22 22.0 1.2 82 81.9 4.3 43 142.8 7.7 90 198.7 10.5 60 259.6 13.6 22 22.0 1.2 82 81.9 4.3 43 142.8 7.7 90 198.7 10.5 60 259.6 13.6 22 22.0 1.2 82 88.9 4.7 49 141.8 7.4 00 20.7 10.5 60 259.6 13.6 22 22.0 1.2 82 88.9 4.7 49 141.8 7.4 00 20.7 10.5 60 259.6 13.6 22 22.0 1.2 82 88.9 4.7 49 148.8 7.5 04 20.7 7 10.5 60 259.6 13.8 25 25.0 1.3 85 84.9 4.4 44 134.8 7.5 04 20.7 7 10.5 60 259.6 13.8 25 25.0 1.3 85 84.9 4.4 44 134.8 7.5 04 20.7 7 10.5 60 250.6 13.7 22 22.2 0 1.2 82 88 19.4 7.4 91 148.8 7.5 04 20.7 7 10.7 10.6 62 261.6 13.7 22 22.2 0 1.4 87 80.9 10.9 10.9 10.9 10.9 10.9 10.9 10.9 1	4	4.0	0.2	64	63.9	3.3	24	123.8	6.5	84	183.7	9.6	44	243.7	12.8
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$						3.5									12.8
$\begin{array}{cccccccccccccccccccccccccccccccccccc$					66.9	3.5									12.9
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					68.9	3.6									13.0
$\begin{array}{cccccccccccccccccccccccccccccccccccc$															13.1
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				71 72											13, 2
15 15 0 0.8 75 74.9 3.9 35 134.8 7.1 96 195.7 10.3 56 255.6 13.4 17 17.0 0.9 77 76.9 4.0 36 135.8 7.2 97 196.7 10.3 57 256.6 13.5 18.18.0 0.9 77 76.9 4.0 37 136.8 7.2 97 196.7 710.3 56 256.6 13.5 19 19.0 1.0 79 78.9 4.1 38 137.8 7.2 98 197.7 710.4 59 258.6 13.6 20 20.0 1.0 80 79.9 4.2 40 139.8 7.3 290 198.7 10.4 59 258.6 13.6 20 20.0 1.0 18.8 8.9 4.2 141 140.8 7.4 201 290.7 10.5 260 259.6 13.6 26 220.0 1.0 1.0 1.0 26 261.0 13.8 88.9 4.4 44 1414.8 7.4 0 <t< td=""><td>13</td><td>13.0</td><td>0.7</td><td>73</td><td>72.9</td><td>3.8</td><td>33</td><td>132.8</td><td>7.0</td><td>93</td><td>192.7</td><td>10.1</td><td>53</td><td>252. 7</td><td>13. 2</td></t<>	13	13.0	0.7	73	72.9	3.8	33	132.8	7.0	93	192.7	10.1	53	252. 7	13. 2
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$															13.3
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	16	16.0	0.8	76	75.9	4.0	36	135.8	7.1	96	195.7	10.3	56	255.6	13.4
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					76.9				$7.2 \\ 7.2$						13.5 13.5
21	19	19.0	1.0	79	78.9	4.1	39	138.8	7.3	99	198.7	10.4	59	258.6	13.6
22 22.0 0 1.2 82 81.9 4.3 42 141.8 7.4 02 201.7 10.6 62 261.6 13.8 24 24.0 1.3 84 83.9 4.4 44 143.8 7.5 04 203.7 10.7 64 263.6 13.8 25 25.0 1.3 85 84.9 4.4 45 144.8 7.6 05 204.7 10.7 64 263.6 13.8 26 26.0 1.4 86 85.9 4.6 47 146.8 7.7 07 206.7 10.8 66 265.6 14.0 28 28.0 1.5 89 88.9 4.7 49 148.8 7.8 09 207.7 10.9 69 266.6 14.1 30 30.0 1.6 90 99.9 4.7 50 149.8 7.7 07 206.7 10.9 69 268.6 14.1															
24 24,0 1,3 84 83.9 4,4 44 143.8 7,5 04 203,7 10,7 65 264.6 13.9 26 26,0 1,4 86 85.9 4.5 46 145.8 7,6 06 205.7 10.8 66 265.6 13.9 27 27.0 1,4 87 86.9 4.6 47 146.8 7,7 07 206.7 10.8 66 266.6 14.0 28 28.0 1.5 89 88.9 4.7 49 148.8 7.8 09 208.7 10.9 69 266.6 14.1 30 30.0 1.6 90 99.9 4.7 50 149.8 7.9 10 10.9 69 266.6 14.1 31 31.0 1.6 91 90.9 4.8 151 150.8 7.9 211 210.7 11.0 70 269.6 14.1 32	22	22.0	1.2	82	81.9	4.3		141.8	7.4	02	201.7		62	261.6	13.7
25 25.0 1.3 85 84.9 4.4 45 144.8 7.6 05 204.7 10.7 65 264.6 13.9 27 27.0 1.4 87 86.9 4.6 47 146.8 7.7 07 206.7 10.8 66 265.6 14.0 28 28.0 1.5 88 87.9 4.6 48 147.8 7.7 08 207.7 10.9 68 267.6 14.0 30 30.0 1.6 90 89.9 4.7 50 149.8 7.9 10 209.7 11.0 70 269.6 14.1 31 31.0 1.6 91 90.9 4.8 151 150.8 8.0 122 211.7 11.0 70 269.6 14.1 33 32.0 1.7 93 92.9 4.9 53 152.8 8.0 13 210.7 11.1 72 271.6 14.2	23		1.2												13.8
26 26,0 1,4 86 85,9 4,5 46 145,8 7,6 0 205,7 10,8 66 265,6 13,9 28 28,0 1,5 88 87,9 4,6 48 147,8 7,7 08 207,7 10,9 68 267,6 14,0 29 29,0 1,5 89 88,9 4,7 49 148,8 7,7 08 207,7 10,9 69 268,6 14,1 30 30,0 1,6 91 90,9 4,8 151 150,8 7,9 211 210,7 11,0 270 268,6 14,1 31 31,0 1,6 91 90,9 4,8 52 151,8 8,0 12 211,7 11,0 271 270,6 14,2 32 32,0 1,7 92 91,9 4,8 52 151,8 8,0 12 211,7 11,1 73 271,6 14,2 <tr< td=""><td>25</td><td></td><td></td><td></td><td></td><td></td><td></td><td>144.8</td><td></td><td></td><td></td><td></td><td></td><td></td><td>13. 9</td></tr<>	25							144.8							13. 9
28 28.0 1.5 88 87.9 4.6 48 147.8 7.7 08 207.7 10.9 68 267.6 14.0 30 30.0 1.6 90 88.9 4.7 50 149.8 7.9 10 209.7 11.0 70 268.6 14.1 31 31.0 1.6 91 90.9 4.8 52 151.8 8.0 12 211.7 11.0 271 270.6 14.2 32 32.0 1.7 92 91.9 4.8 52 151.8 8.0 12 211.7 11.1 72 271.6 14.2 33 33.0 1.7 93 92.9 4.9 53 152.8 8.0 13 212.7 11.1 72 271.6 14.2 34 34.0 1.8 94.9 5.0 56 155.8 8.1 14 213.7 11.2 74 272.6 14.3 35								145.8	7.6						13.9
29 29.0 1.5 89 88.9 4.7 49 148.8 7.8 09 208.7 710.9 69 268.6 14.1 31 31.0 1.6 91 90.9 4.8 151 150.8 7.9 10 209.7 71.0 269.6 14.1 32 32.0 1.7 92 91.9 4.8 52 151.8 8.0 12 211.7 711.1 72 271.6 14.2 33 33.0 1.7 93 92.9 4.9 53 152.8 8.0 13 212.7 11.1 73 272.6 14.3 34 34.0 1.8 94 93.9 4.9 55 153.8 8.1 14 213.7 11.1 73 272.6 14.3 36 36.0 1.9 96 95.9 5.0 56 155.8 8.2 16 215.7 11.3 76 275.6 14.4 4 4									7.7						14.0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$									7.8						
$\begin{array}{cccccccccccccccccccccccccccccccccccc$															
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	32	32.0	1.7	92	91.9	4.8	52	151.8	8.0	12	211.7	11.1	72	271.6	14. 2
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			1.7					152.8 153.8						272. 6 273. 6	14.3
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	35	35.0	1.8	95	94.9	5.0	55	154.8	8.1	15	214.7	11.3	75	274.6	14.4
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$									8.2						14.4
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	38	37.9	2.0	98	97.9	5.1	58	157.8	8.3	18	217.7	11.4	78	277.6	14.5
41 40.9 2.1 101 100.9 5.3 161 160.8 8.4 221 220.7 11.6 281 280.6 14.7 42 41.9 2.2 02 101.9 5.3 62 161.8 8.5 22 221.7 11.6 82 281.6 14.8 43 42.9 2.3 03 102.9 5.4 63 162.8 8.5 23 222.7 11.7 83 282.6 14.8 44 43.9 2.3 04 103.9 5.4 64 163.8 8.6 24 223.7 11.7 84 283.6 14.8 45 44.9 2.4 05 104.9 5.5 65 164.8 8.6 25 224.7 11.8 85 282.6 14.9 45 44.9 2.5 07 106.9 5.6 67 166.8 8.7 27 226.7 11.9 87 286.6 15.0														278.6 279.6	
43 42.9 2.3 03 102.9 5.4 63 162.8 8.5 23 222.7 11.7 83 282.6 14.8 44 43.9 2.3 04 103.9 5.4 64 163.8 8.6 24 223.7 11.7 84 283.6 14.9 45 44.9 2.4 05 104.9 5.5 65 164.8 8.6 25 224.7 11.8 85 284.6 14.9 46 45.9 2.4 06 105.9 5.5 66 165.8 8.7 26 225.7 11.8 86 285.6 15.0 47 46.9 2.5 07 106.9 5.6 67 166.8 8.7 27 226.7 11.9 87 286.6 15.0 48 47.9 2.5 08 107.9 5.7 68 167.8 8.8 28 227.7 11.9 88 287.6 15.1 49 48.9 2.6 10 109.8 5.8 70 169.8 8	41	40.9	2.1	101	100.9	5.3	161	160.8	8.4	221	220.7	11.6	281	280.6	14.7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			2.2							22	221.7				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	44	43.9	2.3	04	103.9	5.4	64	163.8	8.6	24	223.7	11.7	84	283.6	14.9
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$										25 26					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	47	46.9	2.5	07	106.9	5.6	67	166.8	8.7	27	226.7	11.9	87	286.6	15.0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$										28					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			2.6	10		5.8	70		8.9	30					
53 52.9 2.8 13 112.8 5.9 73 172.8 9.1 33 232.7 12.2 93 292.6 15.3 54 53.9 2.8 14 113.8 6.0 74 173.8 9.1 34 233.7 12.2 94 293.6 15.4 55 54.9 2.9 15 114.8 6.0 75 174.8 9.2 35 234.7 12.3 95 294.6 15.4 56 55.9 2.9 16 115.8 6.1 76 175.8 9.2 36 235.7 12.4 96 295.6 15.5 57 56.9 3.0 17 116.8 6.1 77 176.8 9.3 37 236.7 12.4 97 296.6 15.5 58 57.9 3.0 18 117.8 6.2 78 177.8 9.3 38 237.7 12.5 98 297.6 15.6	51		2.7	111			171		8.9	231			291		15. 2
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		52.9	2. 8		112.8	5.9		172.8	9.1	33	232.7	12.2			15.3
56 55.9 2.9 16 115.8 6.1 76 175.8 9.2 36 235.7 12.4 96 295.6 15.5 57 56.9 3.0 17 116.8 6.1 77 176.8 9.3 37 236.7 12.4 97 296.6 15.5 58 57.9 3.0 18 117.8 6.2 78 177.8 9.3 38 237.7 12.5 98 297.6 15.6 59 58.9 3.1 19 118.8 6.2 79 178.8 9.4 39 238.7 12.5 99 298.6 15.6 60 59.9 3.1 20 119.8 6.3 80 179.8 9.4 40 239.7 12.6 300 299.6 15.7		53.9	2.8		113.8	6.0		173.8	9.1	34		12.2			15.4
57 56.9 3.0 17 116.8 6.1 77 176.8 9.3 37 236.7 12.4 97 296.6 15.5 58 57.9 3.0 18 117.8 6.2 78 177.8 9.3 38 237.7 12.5 98 297.6 15.6 59 58.9 3.1 19 118.8 6.2 79 178.8 9.4 39 238.7 12.5 99 298.6 15.6 60 59.9 3.1 20 119.8 6.3 80 179.8 9.4 40 239.7 12.6 300 299.6 15.7	56	55.9	2.9		115.8	6.1		175.8	9.2	36	235.7	12.4		295.6	15.5
59 58.9 3.1 19 118.8 6.2 79 178.8 9.4 39 238.7 12.5 99 298.6 15.6 60 59.9 3.1 20 119.8 6.3 80 179.8 9.4 40 239.7 12.6 300 299.6 15.7	57	56.9		17	116.8	6.1		176.8	9.3	37	236.7	12.4		296.6	15.5
60 59.9 3.1 20 119.8 6.3 80 179.8 9.4 40 239.7 12.6 300 299.6 15.7		58.9	3.1			6. 2		178.8			238.7	12.5		298.6	
Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Lat. Dist. Dep. Lat. Dist. Dep. Lat.		59.9	3. 1					179.8				12.6		299.6	
	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

87° (93°, 267°, 273°).

Difference of Latitude and Departure for 3° (177°, 183°, 357°).

											-			-
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	300.6	15.7	361	360. 5	18.9	421	420. 4	22.0	481	480.3	25. 2	541	540.2	28.3
02	301.6	15.8	62	361.5	19.0	22	421.4	22.1	82	481.3	25. 2	42	541. 2 542. 2	28.4
03	302.6	15. 9	63	362.5	19.0	23	422.4	22. 2	83	482.3	25.3	43	542.2	28.4
04	303.5	15.9	64 65	363. 5 364. 5	19. 1 19. 1	24 25	423. 4 424. 4	22.2 22.3	84 85	483. 3 484. 3	25. 3 25. 4	44 45	543. 2 544. 2	28. 5 28. 5
05	304. 5 305. 5	16.0 16.0	66	365.5	19. 2	26	425. 4	22. 3	86	485.3	25. 4	46	545. 2	28.6
06 07	306.5	16.1	67	366.5	19.2	27	426. 4	22.4	87	486.3	25.5	47	546. 2	28.6
08	307.5	16.1	68	367.5	19.3	28	427.4	22.4	88	487.3	25.5	48	547.2	28.7
09	308.5	16.2	69	368.5	19.3	29 30	428.4 429.4	$22.5 \\ 22.5$	89 90	488. 3 489. 3	25.6 25.6	49 50	$548.2 \\ 549.2$	28. 7 28. 8
$\frac{10}{311}$	$\frac{309.5}{310.5}$	$\frac{16.2}{16.3}$	$\frac{70}{371}$	$\frac{369.5}{370.5}$	19. 4 19. 4	431	430.4	22.6	491	490.3	$\frac{25.0}{25.7}$	551	$\frac{540.2}{550.2}$	28.8
12	311.5	16.3	72	371.5	19.5	32	431.4	22.6	92	491.3	25.7	52	551. 2	28.9
13	312. 5 313. 5	16.4	73	372.5	19.5	33	432.4	22.7	93	492.3	25.8	53	552. 2	28.9
14	313.5	16.4	74	373.5	19.6	34	433.4	22.7	94	493. 3	25.9	54	553. 2	29.0
15	314. 5 315. 5 316. 5	16.5	75 76	374.5 375.5	19.6 19.7	35 36	434. 4 435. 4	22. 8 22. 8	95 96	494. 3 495. 3	$25.9 \\ 26.0$	55 56	554. 2 555. 2	29.1 29.1
16 17	316.5	16.6 16.6	77	376.5	19.8	37	436. 4	22. 9	97	496. 3	26.0	57	556.2	29. 2
18	317.5	16.7	78	377. 4	19.8	38	437.4	22.9	98	497.3	26.1	58	557. 2	29. 2 29. 2
19	318.5	16.7	79	378.4	19.9	39	438.4	23.0	99	498.3	26.1	59	558. 2	29.3
20	319.5	16.8	80	379.4	19.9	40	439.4	23.0	500	499.3	$\frac{26.2}{96.9}$	60	$\frac{559.2}{560.2}$	$\frac{29.3}{29.4}$
321 22	320.5	16.8 16.9	381 82	380. 4 381. 4	20. 0 20. 0	441 42	440. 4 441. 4	23. 1 23. 1	$\frac{501}{02}$	500.3 501.3	26. 2 26. 3	$\frac{561}{62}$	560.2 561.2	29.4
23	321. 5 322. 5 323. 5	16.9	83	382. 4	20. 1	43	442.4	23. 2	03	502.3	26.3	63	562. 2	29.5
23 24	323. 5	17.0	84	383.4	20.1	44	443.4	23.3	04	503.3	26.4	64	563.2	29.5
25	$324.5 \\ 325.5$	17.0	.85	384. 4	20. 2	45	444. 4	23.3	05	504.3	26.4	65	564.2	29.6
26 27	326.5	17.1 17.1	86 87	385. 4 386. 4	20. 2 20. 3	46 47	445. 4 446. 4	23. 4 23. 4	$06 \\ 07$	505. 3 506. 3	$26.5 \\ 26.5$	66 67	565. 2 566. 2	29.6 29.7
28	327.5	17. 2	88	387. 4	20.3	48	447.4	23. 5	08	507.3	26.6	68	567. 2	29.7
29	328.5	17.2	89	388.4	20.4	49	448.4	23.5	09	508.3	26.6	69	568.2	29.8
30	329.5	17.3	90	389.4	20.4	_ 50	449.3	23.6	10_	509.3	26.7	70	569.2	29.8
331	330. 5	17.3	391	390.4	$20.5 \\ 20.5$	451	450.3	23.6	511	510.3	26. 7 26. 8	$\begin{array}{c} 571 \\ 72 \end{array}$	570. 2	29. 9 29. 9
32 33	$331.5 \\ 332.5$	17.4 17.5	92 93	391. 4 392. 4	20. 6	52 53	451.3 452.3	23.7 23.7	$\frac{12}{13}$	511.3 512.3	26.8	73	571. 2 572. 2	30. 0
34	333. 5	17.5	94	393. 4	20.6	54	453. 3	23.8	14	513.3	26.9	74	573. 2 574. 2	30.0
35	334.5	17.6	95	394.4	20. 6 20. 7	55	454.3	23.8	15	514.3	27.0	75	574.2	30. 1
36 37	335. 5 336. 5	17.6	96	395.4	20.7	56	455. 3 456. 3	23. 9 23. 9	16 17	515.3 516.3	$27.0 \\ 27.1$	76 77	575. 2 576. 2	30. 1 30. 2
38	337.5	17.7 17.7	97 98	396. 4 397. 4	20. 8 20. 8	57 58	457.3	24. 0	18	517.3	27. 1	78	577.2	30. 2
39	338.5	17.8	99	398. 4	20.9	59	458.3	24.0	19	518.3	27.2	79	578.2	30.3
40	339.5	17.8	400	399.4	20.9	60	459.3	24.1	_20	519.3	27.2	80	579.2	30.3
341	340.5	17.9	401	400.4	21.0	461	460.3	24.1	521	520. 3	$27.3 \\ 27.3$	$\begin{array}{c} 581 \\ 82 \end{array}$	580. 2	30.4
42 43	$341.5 \\ 342.5$	17. 9 18. 0	02	401. 4	21. 1 21. 1	62 63	461.3 462.3	$24.2 \\ 24.2$	$\begin{array}{c} 22 \\ 23 \end{array}$	521. 3 522. 3	27. 4	83	581. 2 582. 2	30. 4 30. 5
44	343.5	18.0	04	403. 4	21 2	64	463.3	24. 3	$\frac{23}{24}$	523.3	27.4	84	583. 2	30.5
45	343. 5 344. 5	18.1	05	404.4	$ \begin{array}{c c} 21.2 \\ 21.3 \end{array} $	65	464.3	24.4	25	524.3	27.5	85	584.2	30.6
46	345.5	18.1	06	405.4	21.3	66	465.3	24.4	26	525.3 526.3	27.5	86	585. 2	30.6
47 48	$346.5 \\ 347.5$	18. 2 18. 2	07 08	406. 4	$21.3 \\ 21.4$	67 68	466.3 467.3	$24.5 \\ 24.5$	27 28	527.3	$27.6 \\ 27.6$	87 88	586. 2 587. 2	30. 7 30. 7
49	348.5	18.3	09	408.4	21.4	69	468. 3	24.6	29	528.3	27.7	89	588. 2	30.8
50	349.5	18.3	10	409.4	21.5	70	469.3	24.6	30	529.3	27.7	90	589.2	30.9
351	350.5	18. 4	411	410.4	21.5	471	470.3	24.7	531	530. 3	27.8	591	590. 2	30.9
52	351.5	18.4	12	411.4	21.6	72	471.3	24.7	32	531.3	$27.8 \\ 27.9$	92 93	591. 2 592. 2	31. 0 31. 0
53 54	352. 5 353. 5	18.5 18.5	13 14	412.4	$21.6 \\ 21.7$	73	472.3 473.3	24. 8 24. 8	33 34	532.3	27. 9	94	593. 2	31. 1
55	354.5	18.6	15	414.4	21.7	75	474.3	24.9	35	534.3	28.0	95	594.2	31. 1
56	355.5	18.6	16	415.4	21.8	76	475.3	24.9	36	535. 3	28.1	96	595.2	31. 2
57 58	356. 5 357. 5	18. 7 18. 8	17 18	416. 4 417. 4	21.8 21.9	77 78	476. 3 477. 3	$\begin{vmatrix} 25.0 \\ 25.0 \end{vmatrix}$	37 38	536.3	28. 1 28. 2	97 98	596. 2 597. 2	31. 2 31. 3
59	358.5	18.8	19	418.4	21.9	79	478.3	25. 1	39	538.3	28. 2	99	598.2	31.3
60	359.5	18.9	20	419.4	22.0	80	479.3	25. 1	40	539. 3	28.3	600	599. 2	31. 4
7/				-		n' i			70/		7.1	D/	De	Tet
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

87° (93°, 267°, 273°).

TABLE 2.

Difference of Latitude and Departure for 4° (176°, 184°, 356°).

							Dopuit		- (-	, 101	, 000	٠.			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
1	1.0	0.1	61	60.9	4.3	121	120.7	8.4	181	180.6	12.6	241	240. 4	16.8	
$\hat{2}$	2.0	0.1	62	61.8	4.3	22	121.7	8.5	82	181.6	12.7	42	241. 4	16.9	
3	3.0	0.2	63	62.8	4.4	23	122.7	8.6	83	182.6	12.8	43	242.4	17.0	
4	4.0	0.3	64	63.8	4.5	24	123.7	8.6	84	183.6	12.8	44	243.4	17.0	
5	5.0	0.3	65	64.8	4.5	25	124.7	8.7	85	184.5	12.9	45	244.4	17.1	
6	6.0	0.4	66	65.8	4.6	26	125.7	8.8	86	185.5	13.0	46	245.4	17. 2 17. 2	
7	7.0	0.5	67	66.8	4.7	27	126. 7	8.9	87	186.5	13.0	47	246. 4	17.2	
8 9	8. 0 9. 0	0. 6 0. 6	68 69	67.8	4.7 4.8	$\frac{28}{29}$	127.7	8.9	88 89	187.5	13.1	48	247.4	17.3	
10	10.0	0. 7	70	68.8	4.9	$\frac{29}{30}$	128.7 129.7	9.0	90	188. 5 189. 5	13. 2 13. 3	49 50	248. 4 249. 4	17.4 17.4	
11	11.0	0.8	$\frac{70}{71}$	70.8	5.0	131	$\frac{120.7}{130.7}$	$\frac{0.1}{9.1}$	191	190.5	13.3	$\frac{50}{251}$	250. 4	17.5	
12	12.0	0.8	72	71.8	5.0	32	131.7	9. 2	92	191.5	13. 4	$\frac{251}{52}$	251.4	17.6	
13	13. 0	0.9	73	72.8	5. 1	33	132.7	9.3	93	192.5	13.5	53	252. 4	17.6	
14	14.0	1.0	74	73.8	5. 1 5. 2	34	133.7	9.3	94	193.5	13.5	54	253. 4	17.7	
15	15.0	1.0	75	74.8	5. 2	35	134.7	9.4	95	194.5	13.6	55	254.4	17.8	
16	16.0	1.1	76	75.8	5. 3 5. 4	36	135. 7	9.5	96	195.5	13.7	56	255.4	17.8 17.9 17.9	
17	17.0	1.2	77	76.8	5.4	37	136. 7	9.6	97	196.5	13.7	57	256. 4	17.9	
18	18.0	1.3	78	77.8	5.4	38	137.7	9.6	98	197.5	13.8	58	257.4	18.0	
$\frac{19}{20}$	$19.0 \\ 20.0$	1.3 1.4	79 80	78.8 79.8	5. 5 5. 6	39 40	138. 7 139. 7	9. 7 9. 8	99 200	198. 5 199. 5	13. 9 14. 0	59 60	258. 4 259. 4	18. 1 18. 1	
$\frac{20}{21}$	$\frac{20.0}{20.9}$	1.5	$\frac{-80}{81}$	80.8	$\frac{-5.7}{5.7}$	$\frac{40}{141}$	140.7	9.8	$\frac{200}{201}$	200.5	14.0	261	260. 4	18. 2	
$\frac{21}{22}$	21.9	1.5	82	81.8	5.7	42	141.7	9.9	02	201.5	14.1	62	261. 4	18.3	
23	22. 9	1.6	83	82.8	5.8	43	142.7	10.0	03	202.5	14. 2	63	262. 4	18.3	
24	23. 9	1.7	84	83.8	5.9	44	143.6	10.0	04	203.5	14. 2	64	263.4	18.4	
25	24.9	1.7	85	84.8	5.9	45	144.6	10.1	05	204.5	14.3	65	264. 4	18.5	
26	25.9	1.8	86	85.8	6.0	46	145.6	10. 2	06	205.5	14.4	66	265.4	18.6	
27	26. 9	1.9	87	86.8	6.1	47	146.6	10.3	07	206.5	14. 4	67	266.3	18.6	
28-	29 28.9 2.0 89 88.8 6.2 49 148.6 10.4 09 208.5 14.6 69 268.3 18.8 30 29.9 2.1 90 89.8 6.3 50 149.6 10.5 10 209.5 14.6 70 269.3 18.8														
	29 28.9 2.0 89 88.8 6.2 49 148.6 10.4 09 208.5 14.6 69 268.3 18.8 30 29.9 2.1 90 89.8 6.3 50 149.6 10.5 10 209.5 14.6 70 269.3 18.8														
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
32	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
33	$egin{array}{c c c c c c c c c c c c c c c c c c c $														
34	$34 \mid 33.9 \mid 2.4 \mid 94 \mid 93.8 \mid 6.6 \mid 54 \mid 153.6 \mid 10.7 \mid 14 \mid 213.5 \mid 14.9 \mid 74 \mid 273.3 \mid 19.1 \mid$														
	35 34.9 2.4 95 94.8 6.6 55 154.6 10.8 15 214.5 15.0 75 274.3 19.2														
36 37	35. 9 36. 9	$2.5 \\ 2.6$	96 97	95. 8 96. 8	6.8	56 57	155. 6 156. 6	10. 9 11. 0	16 17	215. 5 216. 5	15.1	76 77	275.3	19.3	
38	37.9	2.7	98	97.8	6.8	58	157. 6	11.0	18	$210.5 \\ 217.5$	15. 1 15. 2	78	276.3 277.3	19. 3	
39	38. 9	2.7	99	98.8	6. 9	59	158.6	11.1	19	218.5	15.3	79	278.3	19.5	
40	39.9	2.8	100	99.8	7.0	60	159.6	11. 2	20	219.5	15. 3	80	279.3	19.5	
41	40.9	2.9	101	100.8	7.0	161	160.6	11.2	221	220.5	15. 4	281	280.3	19.6	
42	41.9	2.9	02	101.8	7.1	62	161.6	11.3	22	221.5	15.5	82	281.3	19.7	
43	42.9	3.0	03	102. 7	7.2	63	162.6	11.4	23	222.5	15.6	83	282.3	19.7	
44	43.9	3.1	04	103. 7	7.3	64	163.6	11.4	24	223.5	15.6	84	283.3	19. 7 19. 8 19. 9	
45 46	44. 9 45. 9	$\begin{array}{c} 3.1 \\ 3.2 \end{array}$	05 06	104. 7 105. 7	7.3 7.4	65 66	$164.6 \\ 165.6$	11.5 11.6	25 26	$224.5 \\ 225.4$	15. 7 15. 8	85 86	284. 3 285. 3	19.9	
46	45. 9 46. 9	3. 3	07	106.7	7.4	67	166.6	11.6	27	226.4	15. 8	87	286.3	20.0	
48	47. 9	3.3	08	107. 7	7.5	68	167. 6	11.7	28	227. 4	15. 9	88	287.3	20.0	
49	48.9	3.4	09	108.7	7.6	69	168.6	11.8	29	228.4	16.0	89	288. 3	20. 2	
50	49.9	3.5	10	109.7	7.7	70	169.6	11.9	30	229.4	16.0	90	289.3	20.2	
51	50.9	3.6	111	110.7	7.7	171	170.6	11.9	231	230. 4	16. 1	291	290.3	20.3	
52	51.9	3.6	12	111.7	7.,8	72	171.6	12.0	32	231.4	16.2	92	291.3	20.4	
53	52.9	3.7	13	112.7	7.9	73	172.6	12.1	33	232.4	16.3	93	292. 3	20.4	
54 55	53. 9 54. 9	3. 8 3. 8	14 15	113. 7 114. 7	8. 0 8. 0	74 75	$173.6 \\ 174.6$	$12.1 \\ 12.2$	34 35	233. 4 234. 4	16.3 16.4	94 95	293. 3 294. 3	$20.5 \\ 20.6$	
56	55.9	3.9	16	115.7	8.1	76	175.6	12. 2	36	235. 4	16.5	96	295.3	20.6	
57	56.9	4.0	17	116.7	8. 2	77	176.6	12.3	37	236. 4	16.5	97	296.3	20. 7	
58	57. 9	4.0	18	117.7	8. 2	78	177.6	12.4	38	237.4	16.6	98	297.3	20.8	
59	58.9	4. 1	19	118. 7	8.3	79	178.6	12.5	39	238. 4	16.7	99	298.3	20.9	
60	59.9	4. 2	20	119.7	8.4	80	179.6	12.6	40	239. 4	16.7	300	299.3	20.9	
Dist	Don	Tot	Dist.	Don	Lot	Diet	Don	Tot	Diet	Don	Tot	Dist.	Don	Tot	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
						260. (140 966	9749	1						

86°; (94°, 266°, 274°).

Difference of Latitude and Departure for 4° (176°, 184°, 356°).

ł			ршег	ence or	Latitud	le and	Depart	ure ror	Ŧ (1	70, 101	, 500	<i>)</i> ·			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
301	300.3	21.0	361	360.1	25, 2	421	420.0	29.4	481	479.8	33.5	541	539.7	37. 7	
02	301.3	21.1	62	361.1	25. 2	22	421.0	29. 4	82	480.8	33.6	42	540.7	37.8	
03	302. 2	21.1	63	362. 1	25.3	23	422.0	29.5	83	481.8	33.7	43	541.7	37.9	
04	303. 2	21. 2	64	363.1	25.4	24	423.0	29.6	84	482.8	33.7	44	542.7	37.9	
05	304. 2	21.3	65	364.1	25.5	25	424.0	29.6	85	483.8	33.8	45	543.7	38.0	
06	305. 2	21.3	66	365.1	25.5	26	424.9	29.7	86	484.8	33.9	46	544.7	38.1	
07	306.2	21.4	67	366.1	25.6	27	425.9	29.8	87	485.8	33.9	47	545.7	38.1	
08	307. 2	21.5	68	367.1	25. 7	28	426.9	$ \begin{array}{c} 29.9 \\ 29.9 \end{array} $	88	486.8 487.8	34.0	48	546. 7 547. 7	38. 2 38. 3	
09	308. 2	21.6	69	368. 1 369. 1	25.7 25.8	29 30	427. 9 428. 9	30.0	89 90	488.8	$34.1 \\ 34.2$	49 50	548.7	38.3	
10	$\frac{309.2}{310.2}$	$\frac{21.6}{21.7}$	70	$\frac{309.1}{370.1}$	25. 9	431	429.9	30. 0	491	489.8	34. 2	551	549.7	38.4	
$\begin{array}{c} 311 \\ 12 \end{array}$	310. 2	$21.7 \\ 21.8$	$\frac{371}{72}$	371.1	25. 9	32	430.9	30. 1	92	490.8	34.3	52	550.7	38.5	
13	$311.2 \\ 312.2$	21.8	73	372.1	26.0	33	431.9	30. 2	93	491.8	34.4	53	551.7	38.5	
14	313. 2	21.9	74	373. 1	26. 1	34	432.9	30. 3	94	492.8	34. 4	54	552.7	38.6	
15	314. 2	22.0	75	374.1	26. 2	35	433.9	30.3	95	493.8	34.5	55	553.6	38.7	
16	315.2	22.1	76	375.1	26.2	36	434.9	30.4	96	494.8	34.6	56	554.6	38.7	
17	316.2	22.1	77	376.1	26.3	37	435.9	30.5	97	495.8	34.6	57	555.6	38.8	
18	317.2	22.2	78	377.1	26.4	38	436.9	30.6	98	496.8	34.7	58	556.6	38.9	
19	318.2	22.3	79	378.1	26.4	39	437.9	30.6	500	497.8	34.8	59 60	557.6	38. 9 39. 0	
20	319. 2	22.3	80	$\frac{379.1}{280.1}$	26.5	40	438.9	$\frac{30.7}{20.9}$	500	498.8	34.8	60	558.6		
$\frac{321}{22}$	$320.2 \\ 321.2$	$22.4 \\ 22.5$	381 82	380. 1 381. 1	26. 6 26. 6	441 42	439. 9 440. 9	30. 8 30. 8	$\begin{array}{c} 501 \\ 02 \end{array}$	499. 8 500. 8	34. 9 35. 0	$\begin{array}{c} 561 \\ 62 \end{array}$	559.6 560.6	39. 1 39. 2	
23	$321.2 \\ 322.2$	$\frac{22.5}{22.5}$	83	382.1	26.7	43	441.9	30. 9	03	501.8	35.0	63	561.6	39. 2	
24	323. 2	22.6	84	383. 1	26.8	44	442.9	31.0	04	502.8	35. 1	64	562.6	39.3	
25	324, 2	22.7	85	384.0	26.9	45	443.9	31.0	05	503.8	35. 2	65	563.6	39.4	
26	26 325, 2 22, 7 86 385, 0 26, 9 46 444, 9 31, 1 06 504, 8 35, 2 66 564, 6 39, 4 27 326, 2 22, 8 87 386, 0 27, 0 47 445, 9 31, 2 07 505, 8 35, 3 67 565, 6 39, 5 28 327, 2 22, 9 88 387, 0 27, 1 48 446, 9 31, 2 08 506, 8 35, 4 68 566, 6 39, 6														
27	27 326. 2 22. 8 87 386. 0 27. 0 47 445. 9 31. 2 07 505. 8 35. 3 67 565. 6 39. 5 28 327. 2 22. 9 88 387. 0 27. 1 48 446. 9 31. 2 08 506. 8 35. 4 68 566. 6 39. 6														
	28 327. 2 22. 9 88 387. 0 27. 1 48 446. 9 31. 2 08 506. 8 35. 4 68 566. 6 39. 6 29 328. 2 23. 0 89 388. 0 27. 1 49 447. 9 31. 3 09 507. 8 35. 5 69 567. 6 39. 7														
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32	$\begin{array}{cccccccccccccccccccccccccccccccccccc$														
33	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
34	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
35	34 333.2 23.3 94 393.0 27.5 54 452.9 31.7 14 512.7 35.8 74 572.6 40.0 35 334.2 23.4 95 394.0 27.6 55 453.9 31.7 15 513.7 35.9 75 573.6 40.1														
36	335.2	23.4	96	395.0	27.6	56	454.9	31.8	16	514.7	36.0	76	574.6	40.2	
37	336. 2	23.5	97	396.0	27.7	57	455.9	31.9 31.9	17 18	515.7	36.0	77 78	575.6	40. 2 40. 3	
38 39	$337.2 \\ 338.2$	$23.6 \\ 23.6$	98 99	397. 0 398. 0	$\begin{bmatrix} 27.8 \\ 27.8 \end{bmatrix}$	58 59	456. 9 457. 9	32. 0	19	516. 7 517. 7	36. 1 36. 2	79	576. 6 577. 6	40.3	
40	339. 2	$\frac{23.0}{23.7}$	400	399.0	27.9	60	458.9	32.1	20	518.7	36. 2	80	578.6	40.5	
341	340.2	23.8	401	400.0	28.0	461	459.9	32.2	521	519.7	36.3	581	579.6	40.5	
42	341.2	23.9	02	401.0	28.0	62	460.9	32. 2	22	520.7	36.4	82	580.6	40.6	
43	342.2	23.9	03	402.0	28.1	63	461.9	32.3	23	521.7	36.4	83	581.6	40.7	
44	343.1	24.0	04	403.0	28.2	64	462.9	32.4	24	522.7	36.5	84	582. 6	40.7	
45	344.1	24.1	05	404.0	28.2	65	463. 9	32.4	25	523. 7	36.6	85	583.6	40.8	
46	345.1	24.1	06	405.0	28.3	66	464.9	32.5	26	524.7	36.7	86	584.6	40.9	
47 48	346.1 347.1	$24.2 \\ 24.3$	07	406. 0 407. 0	$\begin{bmatrix} 28.4 \\ 28.5 \end{bmatrix}$	67 68	465. 8 466. 8	32. 6 32. 6	$\frac{27}{28}$	525. 7 526. 7	36. 8 36. 8	87 88	585. 6 586. 6	40.9	
48	348.1	24.3	08 09	407.0	$28.5 \\ 28.5$	69	467.8	32.0 32.7	29	520.7	36. 9	89	587.6	41.0	
50	349.1	24.4	10	409.0	28.6	70	468.8	32.8	30	528.7	37.0	90	588.6	41.2	
351	350.1	24.5	411	410.0	28.7	471	469.8	32.9	531	529.7	37.0	591	589.6	41.3	
52	351.1	24.6	12	411.0	28.7	72	470.8	32.9	32	530.7	37.1	92	590.6	41.3	
53	352.1	24.6	13	412.0	28.8	73	471.8	33.0	33	531.7	37.2	93	591.6	41.4	
54	353.1	24.7	14	413.0	28.9	74	472.8	33.1	34	532.7	37. 2	94	592.6	41.5	
55 56	354.1 355.1	$24.8 \\ 24.8$	15 16	414.0 415.0	28.9 29.0	75 76	473. 8 474. 8	$33.1 \\ 33.2$	35 36	533. 7 534. 7	37. 3 37. 4	95 96	593.6 594.6	41.5 41.6	
57	356. 1	$\frac{24.8}{24.9}$	17	416.0	29. 1	77	475.8	33. 3	37	535.7	37.5	97	595.6	41.7	
58	357.1	25.0	18	417.0	29. 2	78	476.8	33.3	38	536. 7	37.5	98	596.6	41.7	
59	358.1	25.0	19	418.0	29.2	79	477.8	33.4	39	537.7	37.6	99	597.6	41.8	
60	359.1	25.1	20	419.0	29.3	80	478.8	35.5	40	538.7	37.7	600	598.6	41.9	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Don	Lot	
10150.	Dep.	Idt.	Dist.	Dep.						Dep.	Litt.	Dist.	Dep.	Lat	
I					8	86°; (94°, 266	°, 274°).						

86°; (94°, 266°, 274°).

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TABLE 2. Difference of Latitude and Departure for 5° (175°, 185°, 355°).

<u> </u>			Dinei	ence or	Latitu	and	Depart	uie ioi	. (1	10,100	, 500	<i>)</i> .			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
1	1.0	0.1	61	60.8	5.3	121	120.5	10.5	181	180.3	15.8	241	240.1	21.0	
2	2.0	0.2	62	61.8	5.4	22	121.5	10.6	82	181.3	15.9	42	241.1	21.1	
3	3.0	0.3	63	62.8	5.5	23	122.5	10.7	83	182.3	15.9	43	242. 1	21. 2	
4	4.0	0.3	64	63.8	5.6	24	123.5	10.8	84	183.3	16.0	44	243.1	21.3	
$\begin{array}{c c} 5 \\ 6 \end{array}$	5. 0 6. 0	0.4	65 66	64. 8 65. 7	5. 7 5. 8	25 26	$124.5 \\ 125.5$	10.9 11.0	85 86	184.3 185.3	16. 1 16. 2	45 46	244.1 245.1	21. 4 21. 4	
7	7. 0	0.6	67	66.7	5.8	27	126.5	11.1	87	186.3	16. 3	47	246. 1	21.5	
8	8.0	0.7	68	67. 7	5.9	28	127.5	11.2	88	187.3	16.4	48	247.1	21.6	
9	9.0	0.8	69	68.7	6.0	29	128.5	11. 2	89	188.3	16.5	49	248.1	21.7	
10	10.0	0.9	_70	69.7	6.1	_ 30	129.5	11.3	90	189.3	16.6	50	249.0	21.8	
11	11.0	1.0	71	70. 7	6. 2	131	130. 5	11.4	191	190.3	16.6	251	250.0	21.9	
12 13	$12.0 \\ 13.0$	1. 0 1. 1	72 73	71. 7 72. 7	6. 3 6. 4	32 33	131.5 132.5	11.5 11.6	92 93	191.3 192.3	16.7 16.8	52 53	251. 0 252. 0	22. 0 22. 1	
14	13. 9	1. 2	74	73. 7	6.4	34	133.5	11.7	94	193.3	16. 9	54	253. 0	22.1	
15	14.9	1.3	75	74.7	6.5	35	134.5	11.8	95	194.3	17.0	55	254.0	22. 2	
16	15.9	1.4	76	75.7	6.6	36	135.5	11.9	96	195.3	17.1.	56	255.0	22.3	
17	16.9	1.5	77	76. 7	6.7	37	136.5	11.9	97	196.3	17.2	57	256.0	22.4	
18	17.9	1.6	78	77. 7	6.8	38	137.5	12.0	98	197.2	17.3	58	257.0	22.5	
19 20	18. 9 19. 9	1.7 1.7	79 80	78. 7 79. 7	6. 9 7. 0	39 40	$138.5 \\ 139.5$	12. 1 12. 2	99 200	198. 2 199. 2	17.3 17.4	59 60	258. 0 259. 0	22. 6 22. 7	
$\frac{20}{21}$	$\frac{13.3}{20.9}$	1.8	81	80.7	7.1	141	140.5	12.3	201	200.2	17.5	$\frac{-60}{261}$	260.0	22.7	
22	21. 9	1.9	82	81. 7	7. 1	42	141.5	12.4	02	201. 2	17.6	62	261. 0	22.8	
23	22. 9	2.0	83	82.7	7.2	43	142.5	12.5	03	202. 2	17.7	63	262.0	22.9	
24	23.9	2.1	84	83. 7	7.3	44	143.5	12.6	04	203.2	17.8	64	263.0	23.0	
25	24. 9	2. 2	85	84. 7	7.4	45	144.4	12.6	05	204.2	17.9	65	264.0	23. 1	
26	25.9	2.3	86	85. 7	7.5	46	145.4	12.7	06	205. 2 206. 2	18.0	66	265.0	23. 2	
27 28	26. 9 27. 9	2. 4 2. 4	87 88	86. 7 87. 7	7.6	47 48	146. 4 147. 4	12.8 12.9	07 08	200. 2	18. 0 18. 1	67 68	266. 0 267. 0	23. 3 23. 4	
29	28. 9	2.5	89	88. 7	7.8	49	148.4	13.0	09	208. 2	18. 2	69	268.0	23.4	
30	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
31	31 30.9 2.7 91 90.7 7.9 151 150.4 13.2 211 210.2 18.4 271 270.0 23.6														
32	32 31.9 2.8 92 91.6 8.0 52 151.4 13.2 12 211.2 18.5 72 271.0 23.7														
33	33 32.9 2.9 93 92.6 8.1 53 152.4 13.3 13 212.2 18.6 73 272.0 23.8														
	34 33.9 3.0 94 93.6 8.2 54 153.4 13.5 15 212.2 18.7 74 273.0 23.9 35 34.9 3.1 95 94.6 8.3 55 154.4 13.5 15 214.2 18.7 75 274.0 24.0														
36	35. 9	3. 1	96	95.6	8.4	56	155.4	13.6	16	215. 2	18.8	76	274.9	24. 1	
37	36.9	3.2	97	96.6	8.5	57	156.4	13.7	17	216.2	18.9	77	275.9	24. 1	
38	37.9	3.3	98	97.6	8.5	58	157.4	13.8	18	217. 2	19.0	78	276. 9	24. 2	
39 40	38.9	3.4	99 100	98. 6 99. 6	8. 6 8. 7	59 60	158. 4 159. 4	13. 9 13. 9	19 20	218. 2 219. 2	19.1 19.2	79 80	277. 9 278. 9	24. 3 24. 4	
41	$\frac{39.8}{40.8}$	3.6	100	$\frac{99.6}{100.6}$	8.8	161	$\frac{139.4}{160.4}$	14.0	$\frac{20}{221}$	$\frac{219.2}{220.2}$	19.3	281	279.9	24.5	
42	41.8	3.7	02	101.6	8.9	62	161.4	14.1	22	221. 2	19.3	82	280.9	24.6	
43	42.8	3.7	03	102.6	9.0	63	162.4	14. 2	23	222.2	19.4	83	281.9	24. 7	
44	43.8	3.8	04	103.6	9.1	64	163.4	14.3	24	223. 1	19.5	84	282.9	24.8	
45	44.8	3.9	05	104.6	9.2	65	164. 4	14.4	25	224.1	19.6	85	283. 9	24.8	
46 47	45. 8 46. 8	4. 0 4. 1	06 07	105. 6 106. 6	9. 2 9. 3	66 67	165. 4 166. 4	14. 5 14. 6	26 27	225. 1 226. 1	19.7 19.8	86 87	284. 9 285. 9	24. 9 25. 0	
48	47.8	4. 2	08	107.6	9.4	68	167.4	14.6	28	227.1	19.9	88	286. 9	25. 1	
49	48.8	4.3	09	108.6	9.5	69	168. 4	14.7	29	228.1	20.0	89	287. 9	25. 2	
50	49.8	4.4	10	109.6	9.6	70	169.4	14.8	30	229.1	20.0	90	288.9	25. 3	
51	50.8	4.4	111	110.6	9.7	171	170.3	14. 9	231	230. 1	20. 1	291	289. 9	25.4	
52	51.8	4.5		111.6			171.3	15.0		231.1	20. 2		290.9	25.4	
53 54	52. 8 53. 8	4.6 4.7	13 14	112. 6 113. 6	9.8 9.9	73 74	172.3 173.3	15. 1 15. 2	33 34	232. 1 233. 1	20.3	93 94	291. 9 292. 9	25. 5 25. 6	
55	54.8	4. 8	15	114.6	10.0	75	.174.3	15. 3	35	234. 1	20. 5	95	293. 9	25.7	
56	55. 8	4.9	16	115.6	10.1	76	175.3	15.3	36	235.1	20.6	96	294.9	25.8	
57	56.8	5.0	17	116.6	10.2	77	176.3	15.4	37	236. 1	20.7	97	295. 9	25.9	
58	57.8	5.1	18	117.6	10.3	78	177.3	15.5	38	237.1	20.7	98	296. 9	26.0	
59	58.8	5. 1 5. 2	19	118.5	10. 4 10. 5	79 80	178.3 179.3	15. 6 15. 7	39 40	238. 1 239. 1	20.8 20.9	99 300	297. 9 298. 9	26. 1 26. 1	
60	59.8	0.2	20	119.5	10. 3	80	179. 3	10. 7	40	208. 1	20. 8	300	200. 9	20.1	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
						85° (9	95°, 265°	, 275°).						

TABLE 2.

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Difference of Latitude and Departure for 5° (175°, 185°, 355°).

02 300. 8 26. 3 62 360. 6 31. 6 22 420. 4 36. 8 82 480. 2 42. 0 42 583. 9 47. 02 300. 8 26. 3 62 360. 6 31. 6 22 420. 4 36. 8 82 480. 2 42. 0 42 583. 9 47. 04 302. 8 26. 4 63 361. 6 31. 7 24 422. 4 37. 0 84 482. 2 42. 2 44 6 44. 9 47. 05 303. 8 26. 6 65 363. 6 31. 8 25 423. 4 37. 1 85 483. 2 42. 3 45 542. 9 47. 06 304. 8 26. 7 66 364. 6 31. 9 26 424. 4 37. 1 86 484. 1 42. 4 46 543. 9 47. 07 305. 8 26. 8 67 365. 6 32. 1 28 426. 4 37. 3 88 486. 1 42. 5 48 544. 9 47. 08 306. 8 26. 9 68 366. 6 32. 1 28 426. 4 37. 3 88 486. 1 42. 5 48 544. 9 47. 08 308. 8 27. 0 70 368. 6 32. 3 30 428. 4 37. 1 86 484. 1 42. 5 48 546. 9 47. 10 308. 8 27. 0 70 368. 6 32. 3 30 428. 4 37. 5 90 488. 1 42. 5 548 549. 42. 11 308. 8 27. 0 70 368. 6 32. 3 30 428. 4 37. 5 90 488. 1 42. 5 55 544. 9 47. 10 308. 8 27. 0 70 368. 6 32. 3 30 428. 4 37. 5 90 488. 1 42. 5 55 544. 9 47. 11 308. 8 27. 0 70 368. 6 32. 3 30 428. 4 37. 5 90 488. 1 42. 5 55 544. 9 47. 12 313. 309. 8 27. 0 70 370. 6 32. 4 32 430. 4 37. 7 92 480. 1 42. 9 52 549. 9 48. 12 310. 8 27. 2 72 370. 6 32. 6 32. 6 34 432. 3 37. 9 94 489. 1 42. 8 551 548. 9 48. 12 310. 8 27. 5 78 371. 6 32. 5 33 431. 329. 3 491. 1 43. 1 55 52. 549. 9 48. 13 311. 8 27. 5 76 374. 6 32. 8 36 433. 3 38. 9 494. 482. 1 43. 1 55 651. 9 48. 14 312. 8 27. 5 78 376. 6 32. 9 37 453. 3 31. 9 96 494. 1 43. 5 56 552. 9 48. 18 316. 8 27. 7 78 376. 6 32. 9 37 453. 3 31. 9 94 491. 1 43. 1 55 651. 9 48. 18 318. 8 27. 9 78 376. 6 32. 9 37 453. 3 31. 9 94 491. 1 43. 1 55 651. 9 48. 18 318. 8 27. 9 78 386. 5 33. 4 444. 33. 38. 0 96 494. 1 43. 1 55 652. 9 48. 18 316. 8 27. 7 78 376. 6 32. 9 37 453. 3 31. 9 94 491. 1 43. 1 55 652. 9 48. 18 316. 8 27. 7 8 376. 6 32. 9 37 453. 3 31. 9 95 496. 1 44. 1 43. 5 56 553. 9 48. 18 318. 8 27. 9 78 386. 5 33. 7 44 443. 3 38. 0 96 494. 1 43. 5 56 553. 9 48. 18 318. 8 27. 9 78 386. 5 33. 4 444. 33. 38. 0 96 494. 1 44. 1 44. 6 46. 563. 9 48. 18 318. 8 27. 9 78 38. 5 33. 4 448. 3 38. 5 00 488. 1 448. 4 48. 5 56 559. 9 48. 18 318. 8 27. 9 78 38 38 38 38 38 38 38 38 38 38 38 38 38				Dille	rence or	Latitu	ue and	Depari	ure 101	0 (1	.75*, 180	, 555	J·			
02 300.8 26.3 62 360.6 31.6 23 421.4 36.9 83 481.2 42.2 42.0 42 530.9 47.0 43 302.8 26.4 66 53 301.6 31.6 23 421.4 35.40.9 47.7 40.6 302.8 26.6 65 303.6 31.8 25 423.4 37.1 85 483.2 42.2 42.2 44 541.9 47.7 40.6 304.8 26.7 66 304.6 31.9 26 424.4 37.1 86 484.1 42.4 46 543.9 47.7 305.8 26.8 67 365.6 32.0 27 425.4 37.2 87 485.1 42.5 44 75 544.9 47.7 40.8 306.8 26.9 66 366.6 32.1 28 426.4 37.3 88 486.1 42.5 48 546.9 47.1 10 308.8 27.0 70 305.8 30.6 32.3 30 428.4 37.5 84 487.1 42.5 48 546.9 47.1 10 308.8 27.0 70 388.6 32.3 30 428.4 37.5 90 488.1 42.7 50 547.9 48.1 13 309.8 27.1 371.6 32.5 33.3 431 429.4 37.6 439.1 489.1 42.9 52.5 549.9 48.1 13 309.8 27.2 72 370.6 32.4 32 430.4 37.7 92 480.1 42.9 52.5 549.9 48.1 13 318.8 27.5 76 373.6 32.7 35 433.3 37.9 93 491.1 43.1 55 52.9 48.1 14 31.8 27.5 76 374.6 32.8 36 433.3 37.9 93 491.1 43.1 55 52.9 48.1 14 31.8 27.5 76 374.6 32.8 36 433.3 38.9 94.7 442.1 43.1 55 52.9 48.1 18 318.8 27.5 78 374.6 32.8 36 433.3 38.9 94.7 442.1 43.1 55 52.9 48.1 18 318.8 27.5 78 374.6 32.8 36 433.3 38.9 94.7 442.1 43.1 55 52.9 48.1 18 318.8 27.5 78 376.6 32.9 37 435.3 38.1 97 99 49.1 14.3 1.5 55.9 54.9 48.1 18 318.8 27.7 78 376.6 32.9 37 435.3 38.1 99 497.1 43.3 57 554.9 48.1 18 318.8 27.7 78 376.6 32.9 37 435.3 38.1 99 497.1 43.3 57 554.9 48.1 18 318.8 27.9 80 378.6 33.1 40 438.3 38.1 99 497.1 43.5 59 556.9 48.1 18 318.8 27.9 80 378.6 33.1 40 438.3 38.1 99 497.1 44.1 43.6 60 557.9 48.1 18 318.8 27.9 80 378.6 33.1 40 438.3 38.1 99 497.1 44.1 43.6 60 557.9 48.1 18 318.8 27.9 80 378.6 33.1 40 438.3 38.1 99 497.1 44.1 43.6 60 557.9 48.1 18 318.8 27.9 80 378.6 33.1 40 438.3 38.1 90 50.5 44.1 44.1 66 563.8 49.9 327.8 38.8 38.5 33.6 44 44.3 38.9 06 504.1 44.1 1.6 66 563.8 49.9 327.8 38.8 38.5 33.6 44 44.3 38.9 06 504.1 44.1 1.6 65 563.8 49.9 327.8 38.5 38.5 38.5 38.6 48.4 38.3 38.9 06 504.1 44.1 1.6 65 563.8 49.9 327.2 328.8 38.8 38.5 33.6 44.4 33.3 39.9 07 505.1 44.4 42.3 38.7 04 505.1 44.1 49.9 55.8 56.8 49.9 327.7 358.5 33.8 49.0 50.1 44.4 42.3 38.7 04 505.1 44.4 65 568.8 49.9 38.5 33.1 39.9 38.5 34	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
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04 902. 8 26. 5 64 362. 6 31. 7 24 492. 4 37. 0 84 482. 2 42. 2 44 541. 9 47. 06 304. 8 26. 6 65 363. 6 31. 9 26 494. 4 37. 1 86 484. 1 42. 4 46 543. 9 47. 07 305. 8 26. 8 67 365. 6 32. 0 27 495. 4 37. 2 87 485. 1 42. 4 47 544. 9 47. 08 306. 8 26. 9 69 367. 6 32. 2 29 427. 4 37. 4 38 486. 1 42. 5 48 544. 9 47. 10 308. 8 27. 0 70 368. 6 32. 1 28 426. 4 37. 3 88 486. 1 42. 5 48 544. 9 47. 10 308. 8 27. 0 70 368. 6 32. 3 30 428. 4 37. 5 90 488. 1 42. 5 55 544. 9 47. 10 308. 8 27. 0 70 368. 6 32. 3 30 428. 4 37. 5 90 488. 1 42. 5 55 544. 9 47. 11 313. 908. 8 27. 1 371. 939. 6 32. 3 31 429. 4 37. 6 49. 1 42. 9 52. 5 549. 9 48. 12 310. 8 27. 1 371. 939. 6 32. 3 31 429. 4 37. 6 49. 1 42. 9 52. 5 549. 9 48. 12 310. 8 27. 2 72 370. 6 32. 6 32. 4 32 430. 4 37. 7 92 490. 1 42. 9 52. 5 549. 9 48. 13 311. 8 27. 5 76 373. 6 32. 7 35 433. 3 37. 9 93 491. 1 43. 1 55 552. 9 48. 14 312. 8 27. 4 74 372. 6 32. 6 34 432. 3 37. 8 94 492. 1 43. 1 55 552. 9 48. 16 314. 8 27. 5 76 374. 6 32. 8 36 434. 3 38. 0 96 494. 1 43. 2 56 553. 9 48. 18 316. 8 27. 7 78 376. 6 32. 9 37 455. 3 38. 1 39 9 491. 1 43. 1 55 552. 9 48. 18 316. 8 27. 7 78 376. 6 32. 9 37 455. 3 38. 1 97 495. 1 43. 1 55 552. 9 48. 18 316. 8 27. 7 78 376. 6 32. 9 37 455. 3 38. 1 94 492. 1 43. 1 55 552. 9 48. 18 316. 8 27. 7 8 376. 6 33. 0 38 436. 3 38. 1 97 496. 1 43. 5 56 552. 9 48. 18 318. 82. 9 381. 8 38. 8 38. 1 33. 1 40 438. 3 38. 0 96 494. 1 43. 2 56 555. 9 48. 18 318. 82. 9 381. 8 384. 8 384. 5 30. 4 492. 1 44. 4 38. 5 59 556. 9 48. 18 318. 82. 9 381. 8 381. 5 33. 4 440. 3 38. 5 02 500. 488. 1 44. 1 44. 1 66 562. 8 49. 21 319. 8 28. 2 83 85 838. 5 33. 6 44 443. 3 38. 0 96 504. 1 44. 1 66 563. 8 49. 22 320. 8 28. 1 88 838. 5 33. 6 44 443. 3 38. 0 06 504. 1 44. 1 66 563. 8 49. 23 321. 8 28. 2 83 85 838. 5 33. 6 44 443. 3 38. 0 06 504. 1 44. 1 66 563. 8 49. 24 322. 8 28. 2 84 838. 5 33. 6 44. 443. 3 38. 0 06 504. 1 44. 1 66 563. 8 49. 32 321. 8 28. 1 8 8 386. 5 33. 6 44 443. 3 38. 0 06 504. 1 44. 1 66 563. 8 49. 32 321. 3 321. 2 99. 0 38. 3 38. 5 33. 4 40. 5 50. 5 50. 1						31.6	22							539.9	47.3	
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Section Sect	19	317.8		79	377.6	33.0		437.3	38.3	99	497.1	43.5	59	556. 9	48.8	
223 321.8 28.1 82 38.5 33.5 33.4 43 441.3 38.6 02 500.1 43.8 62 559.8 49.9 24 322.8 28.2 84 382.5 33.4 44 442.3 38.7 04 502.1 43.9 64 561.8 49.2 25 323.8 28.2 84 382.5 33.5 44 442.3 38.7 04 502.1 43.9 64 561.8 49.2 26 324.8 28.3 85 385 383.5 33.7 46 4443.3 38.8 05 503.1 44.0 65 562.8 49.2 27 325.8 28.5 87 385.5 33.7 47 445.3 39.0 07 505.1 44.2 67 564.8 49.2 28 326.7 28.6 88 386.5 33.7 47 445.3 39.0 07 505.1 44.2 67 564.8 49.2 29 327.7 28.7 89 387.5 33.9 49 447.3 39.1 09 507.1 44.4 69 566.8 49.2 30 328.7 28.9 90 388.5 34.0 50 448.3 39.2 10 508.1 44.5 70 567.8 49.3 31 329.7 28.9 391 389.5 34.1 451 449.3 39.3 511 509.0 44.5 571 568.8 49.3 32 330.7 28.9 92 390.5 34.2 52 450.3 39.4 12 510.0 44.6 72 569.8 49.3 33 331.7 29.0 9 3 391.5 34.3 53 451.3 39.5 13 511.0 44.7 73 570.8 50.4 34 332.7 29.1 94 392.5 34.3 54 452.3 39.6 14 512.0 44.7 77 577.8 50.4 34 332.7 29.1 94 392.5 34.3 54 452.3 39.6 14 512.0 44.7 77 577.8 50.4 35 333.7 29.9 95 396.5 34.4 55 453.3 39.7 15 513.0 44.9 75 572.8 50.4 36 334.7 29.3 96 394.5 34.4 55 453.3 39.6 14 512.0 44.7 77 575.8 50.4 37 335.7 29.4 97 395.5 34.6 57 455.3 39.8 17 515.0 45.1 77 574.8 50.4 38 336.7 29.3 4 97 395.5 34.6 57 455.3 39.8 17 515.0 45.1 77 574.8 50.4 39 397.7 29.6 99 397.5 34.8 59 457.3 40.0 19 517.0 45.5 278 572.8 50.4 40 338.7 29.6 99 397.5 34.8 59 457.3 40.0 19 517.0 45.5 278 578.8 50.4 41 339.7 29.7 401 399.5 35.0 461 459.2 40.2 521 519.0 45.7 8 578.8 50.4 42 340.7 29.8 02 400.5 35.0 62 400.2 40.3 22 520.0 45.5 82 579.8 50.4 43 347.7 30.0 04 402.5 35.0 62 400.2 40.3 22 520.0 45.5 82 579.8 50.4 43 347.7 30.0 04 402.5 35.0 62 400.2 40.1 20 518.0 45.7 8 458.8 50.5 447 345.7 30.0 04 402.5 35.0 64 462.2 40.4 24 522.0 45.6 8 59.5 58.8 51.5 458 346.8 346.8 347.1 409.4 35.6 68 466.2 40.4 35.5 50.4 46.5 99 59.5 58.8 51.5 559 357.6 31.1 17 415.4 36.2 75 477.2 41.8 39 536.9 47.0 99 596.7 52.5 560 358.6 31.4 10.4 36.6 77 477.2 41.8 39 536.9 47.0 99 596.7 52.5 560 358.6 31.4 120 418.4 36.6 77 477.2 41.8 39 536.9 47.0 99 596.7 52.5 560 358.6 31.4 120 418.4 36.6 77 477.2 41.8 40 537.9	20	318.8	27.9	80	378.6	33.1	40	438.3	38.4	500	498.1	43.6	60	557.9	48.8	
23 321.8 28.2 83 381.5 33.4 43 441.3 38.6 03 501.1 43.8 63 560.8 49. 24 322.8 28.2 84 382.5 33.5 44 442.3 38.7 04 502.1 43.9 64 561.8 49. 25 323.8 28.2 84 86 384.5 33.7 46 444.3 38.9 06 504.1 44.0 65 562.8 49. 26 324.8 28.4 86 384.5 33.7 46 444.3 38.9 06 504.1 44.0 65 562.8 49. 27 325.8 28.5 7 385.5 33.7 47 445.3 39.0 07 505.1 44.2 67 564.8 49. 28 326.7 28.6 88 386.5 33.8 48 444.3 39.0 07 505.1 44.2 67 564.8 49. 28 326.7 28.6 88 386.5 33.8 48 444.3 39.0 07 505.1 44.2 67 564.8 49. 30 328.7 28.9 90 388.5 34.0 50 448.3 39.1 09 507.1 44.4 69 566.8 49. 30 328.7 28.9 90 388.5 34.0 50 448.3 39.1 09 507.1 44.5 70 567.8 49. 31 329.7 28.9 92 390.5 34.2 52 450.3 39.4 12 510.0 44.5 571 568.8 49. 33 331.7 29.0 93 391.5 34.3 53 451.3 39.5 13 511.0 44.7 73 570.8 50.0 34.3 32.7 29.1 94 392.5 34.3 54 452.3 39.6 14 512.0 44.8 77 572.8 50.3 34 332.7 29.1 94 392.5 34.3 54 452.3 39.6 14 512.0 44.8 77 572.8 50.3 36 334.7 29.2 9 390.5 34.2 55.4 553.3 39.7 15 513.0 44.9 75 572.8 50.3 36 334.7 29.2 9 390.5 34.4 55 453.3 39.7 15 513.0 44.9 75 572.8 50.3 36 334.7 29.2 9 393.5 34.4 55 453.3 39.7 15 513.0 44.9 75 572.8 50.3 36 334.7 29.2 9 39.5 34.8 55 453.3 39.7 15 513.0 44.9 75 572.8 50.3 36 334.7 29.2 9 39.5 34.8 55 453.3 39.7 15 513.0 44.9 75 572.8 50.4 36.3 39.3 39.7 35.5 34.9 39.5 34.4 55 453.3 39.9 18 516.0 45.1 77 574.8 50.0 38.3 337.7 29.6 99 397.5 34.8 59.4 450.1 20 518.0 44.9 75 573.8 50.4 41 339.7 29.4 49.3 39.5 34.9 49.4 49.3 39.9 18 516.0 45.1 77 574.8 50.4 338.7 29.6 99 39.5 34.5 56 454.3 39.8 16 514.0 45.0 76 573.8 50.4 41 339.7 29.6 99 397.5 34.8 59.4 44.0 12 518.0 44.9 75 578.8 50.4 41 339.7 29.6 99 397.5 34.8 59.4 44.0 2.2 52.0 45.7 84.9 85.0 850.8 50.4 41 330.7 29.6 99 397.5 34.8 59.4 44.0 2.2 52.0 45.7 84.8 49.4 49.4 33.7 7.2 9.0 9.8 396.5 34.7 58.4 49.4 49.2 52.5 520.0 45.5 82.5 578.8 50.4 49.4 49.3 39.7 15 510.0 44.9 75 578.8 50.4 49.4 49.3 39.8 16 514.0 49.9 40.4 49.9 40.1 40.4 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1 40.4 40.1	321		28.0	381		33.2				501			561	558.8	48.9	
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47 345.7 30.3 07 405.4 35.5 67 465.2 40.7 27 525.0 45.9 87 584.8 51.2 48 346.7 30.3 08 406.4 35.6 68 466.2 40.8 28 526.0 46.0 88 585.8 51.3 49 347.7 30.4 09 407.4 35.7 69 467.2 40.9 29 527.0 46.1 89 586.8 51.3 50.3 48.7 30.5 10 408.4 35.7 70 468.2 41.0 30 528.0 46.2 90 587.8 51.5 51.3 349.7 30.6 411 409.4 35.8 471 469.2 41.1 531 529.0 46.3 591 588.7 51.6 52 350.7 30.7 12 410.4 35.9 72 470.2 41.1 32 530.0 46.4 92 589.7 51.6 352.6 30.9 14 412.4 36.0 73 471.2 41.2 33 531.0 46.5 93 590.7 51.7 51.6 52 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 94 591.7 51.6 55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 95 592.7 51.5 56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.0 46.6 95 592.7 51.5 56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 52.0 57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 52.1 58 356.6 31.2 18 416.4 36.4 78 476.2 41.7 38 535.9 46.9 98 595.7 52.2 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 40 537.9 47.1 600 597.7 52.5 50 50.5 50.5 50.5 50.5 50.5 50.5 5	46	344.7		06	404.5	35.4		464.2	40.6	26	524.0	45.9	86	583.8	51.1	
48 346.7 30.3 08 406.4 35.6 68 466.2 40.8 28 526.0 46.0 88 585.8 51.3 49 347.7 30.4 09 407.4 35.7 69 467.2 40.9 29 527.0 46.1 89 586.8 51.4 50 348.7 30.5 10 408.4 35.7 70 468.2 41.0 30 528.0 46.2 90 587.8 51.5 51 349.7 30.6 411 409.4 35.8 471 469.2 41.1 531 529.0 46.3 591 588.7 51.6 52 350.7 30.7 12 410.4 35.9 72 470.2 41.1 32 530.0 46.4 92 589.7 51.6 53 351.7 30.8 13 411.4 36.0 73 471.2 41.2 33 531.0 46.5 93 590.7 51.7 54 352.6 30.9 14 412.4 36.1 74 472.2 41.3 34 532.0 46.6 94 591.7 51.8 55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 95 592.7 51.6 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 52.6 57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 52.6 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.5 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.						35.5			40.7	27	525.0	45.9	87	584.8	51. 2	
50 348.7 30.5 10 408.4 35.7 70 468.2 41.0 30 528.0 46.2 90 587.8 51.8 51 349.7 30.6 411 409.4 35.8 471 469.2 41.1 531 529.0 46.3 591 588.7 51.6 52 350.7 30.7 12 410.4 35.9 72 470.2 41.1 32 530.0 46.4 92 589.7 51.6 53 351.7 30.8 13 411.4 36.0 73 471.2 41.2 33 531.0 46.5 93 590.7 51.6 54 352.6 30.9 14 412.4 36.1 74 472.2 41.3 34 532.0 46.6 94 591.7 51.5 55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 94 591.7						35.6				28	526.0	46.0	88		51.3	
51 349.7 30.6 411 409.4 35.8 471 469.2 41.1 531 529.0 46.3 591 588.7 51.6 52 350.7 30.7 12 410.4 35.9 72 470.2 41.1 32 530.0 46.4 92 589.7 51.6 53 351.7 30.8 13 411.4 36.0 73 471.2 41.2 33 531.0 46.5 93 590.7 51.6 54 352.6 30.9 14 412.4 36.1 74 472.2 41.3 353.0 46.6 94 591.7 51.6 55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 94 591.7 51.6 56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 52.0 </td <td></td> <td>527.0</td> <td></td> <td></td> <td></td> <td>51.4</td>											527.0				51.4	
52 350.7 30.7 12 410.4 35.9 72 470.2 41.1 32 530.0 46.4 92 589.7 51.6 53 351.7 30.8 13 411.4 36.0 73 471.2 41.2 33 531.0 46.5 93 590.7 51.7 54 352.6 30.9 14 412.4 36.1 74 472.2 41.3 34 532.0 46.6 94 591.7 51.6 55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 95 592.7 51.6 56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 52.6 57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 52.1 58 356.6 31.2 18 416.4 36.4 78 476.2 41.7 38 535.9 46.9 98 595.7 52.2 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 61 515.					-								1		51.5	
53 351.7 30.8 13 411.4 36.0 73 471.2 41.2 33 531.0 46.5 93 590.7 51.7 54 352.6 30.9 14 412.4 36.1 74 472.2 41.3 34 532.0 46.6 94 591.7 55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 95 592.7 56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 58 356.6 31.2 18 416.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52 353.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 600 597.7 52.5 601 602 603 6	351														51.6	
54 352.6 30.9 14 412.4 36.1 74 472.2 41.3 34 532.0 46.6 94 591.7 51.8 55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 95 592.7 51.8 56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 52.6 57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 52.1 58 356.6 31.2 18 416.4 36.4 78 476.2 41.7 38 535.9 46.9 98 595.7 52.2 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 358.6 31.4 Dist. Dep. Lat. Dist. Dep. De					410.4		72	470.2	41.1					589.7	51.6	
55 353.6 30.9 15 413.4 36.2 75 473.2 41.4 35 533.0 46.6 95 592.7 51.6 56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 52.6 57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 52.1 58 356.6 31.2 18 416.4 36.4 78 476.2 41.7 38 535.9 46.9 98 595.7 52.2 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 61 55 55 55 55 55 55 55		351.7				36.0	73	471.2	41.2	33	531.0			590.7	51.7	
56 354.6 31.0 16 414.4 36.3 76 474.2 41.5 36 533.9 46.7 96 593.7 52.0 57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 52.1 58 356.6 31.2 18 416.4 36.4 78 476.2 41.7 38 535.9 46.9 98 595.7 52.1 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 vist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat.						30. 1		472.2						591.7		
57 355.6 31.1 17 415.4 36.4 77 475.2 41.6 37 534.9 46.8 97 594.7 52.1 58 356.6 31.2 18 416.4 36.4 78 476.2 41.7 38 535.9 46.9 98 595.7 52.2 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 vist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat.						36.2		474 9	41.4					502.7		
58 356.6 31.2 18 416.4 36.4 78 476.2 41.7 38 535.9 46.9 98 595.7 52.2 59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 vist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat.								475 9						501 7		
59 357.6 31.3 19 417.4 36.5 79 477.2 41.8 39 536.9 47.0 99 596.7 52.3 60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.3 60 597.7 52.3 60 60 60 60 60 60 60 60																
60 358.6 31.4 20 418.4 36.6 80 478.2 41.8 40 537.9 47.1 600 597.7 52.5 iist. Dep. Lat. Dist. Dep. Lat.						36.5										
oist. Dep. Lat. Dist. Dep. Lat.	60														52.3	
85° (95° 265° 275°)	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
OU 100 9 MOU 4 M 10 J+							85° (9	5°, 265°	, 275°).						

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TABLE 2.

Difference of Latitude and Departure for 6° (174°, 186°, 354°).

			Diner	ence or	Lantu	and and	рерагі	ure 101	0 (1	74 , 100	, 504	١٠			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
1	1.0	0.1	61	60.7	6.4	121	120.3	12.6	181	180.0	18.9	241	239. 7	25. 2	
	2.0	0.2	62	61.7	6.5	22	121.3	12.8	82	181.0	19.0	42	240.7	25.3	
2 3	3.0	0.3	63	62.7	6.6	23	122.3	12.9	83	182.0	19.1	43	241.7	25. 4	
4	4.0	0.4	64	63.6	6.7	24	123.3	13.0	84	183.0	19.2	44	242.7	25.5	
5	5.0	0.5	65	64.6	6.8	25 26	124. 3 125. 3	13.1	85	184.0	19.3	45	243. 7	25.6	
6 7	6. 0 7. 0	0.6 0.7	66 67	65. 6 66. 6	6.9	26 27	125. 3 126. 3	13. 2 13. 3	86 87	185. 0 186. 0	19.4 19.5	46 47	244.7 245.6	25. 7 25. 8	
8	8.0	0.7	68	67.6	7.0 7.1	28	127.3	13.4	88	187.0	19.7	48	246.6	25. 9	
9	9.0	0. 9	69	68.6	7.2	29	128.3	13.5	89	188.0	19.8	49	247.6	26.0	
10	9.9	1.0	70	69.6	7.3	30	129.3	13.6	90	189.0	19.9	50	248.6	26.1	
11	10.9	1.1	71	70.6	7.4	131	130.3	13.7	191	190.0	20.0	251	249.6	26. 2	
12	11.9	1.3	72	71.6	7.5	32	131.3	13.8	92	190.9	20.1	52	250.6	26.3	
13	12.9	1.4	73	72.6	7.6	33	132.3	13.9	93	191.9	20.2	53	251.6	26.4	
14 15	13. 9 14. 9	$1.5 \\ 1.6$	74 75	73. 6 74. 6	7. 7 7. 8	34 35	133. 3 134. 3	14. 0 14. 1	94 95	192. 9 193. 9	20.3	54 55	252. 6 253. 6	26. 6 26. 7	
16	14. 9 15. 9	1.7	76	75.6	7.9	36	135.3	14. 2	96	194. 9	20.5	56	254.6	26. 8	
17	16.9	1.8	77	76.6	8.0	37	136. 2	14.3	97	195. 9	20.6	57	255.6	26.9	
18	17.9	1. 9	78	77.6	8.2	38	137.2	14.4	98	196. 9	20.7	58	256.6	27.0	
19	18.9	2.0	79	78.6	8.3	39	138.2	14.5	99	197. 9	20.8	59	257.6	27.1	
20	19.9	2.1	80	79.6	8.4	40	139.2	14.6	200	198.9	20.9	60	258.6	27. 2	
21	20.9	2. 2	81	80.6	8.5	141	140.2	14.7	201	199.9	21.0	261	259.6	27.3	
22 23	21. 9 22. 9	2.3	82 83	81. 6 82. 5	8. 6 8. 7	42 43	$141.2 \\ 142.2$	14. 8 14. 9	$02 \\ 03$	200. 9 201. 9	$21.1 \\ 21.2$	62 63	260. 6 261. 6	27. 4 27. 5	
24	23.9	$2.4 \\ 2.5$	84	83.5	8.8	44	143. 2	15.1	03	202. 9	21. 2	64	262.6	27.6	
25	24. 9	2.6	85	84.5	8. 9	45	144.2	15. 2	05	203.9	21.4	65	263.5	27.7	
26	25. 9	$\tilde{2}.\tilde{7}$	86	85.5	9.0	46	145.2	15.3	06	204.9	21.5	66	264.5	27.8	
27	27 26.9 2.8 87 86.5 9.1 47 146.2 15.4 07 205.9 21.6 67 265.5 27.9 28 27.8 2.9 88 87.5 9.2 48 147.2 15.5 08 206.9 21.7 68 266.5 28.0														
28	28 27.8 2.9 88 87.5 9.2 48 147.2 15.5 08 206.9 21.7 68 266.5 28.0 29 28.8 3.0 89 88.5 9.3 49 148.2 15.6 09 207.9 21.8 69 267.5 28.1														
	28 27.8 2.9 88 87.5 9.2 48 147.2 15.5 08 206.9 21.7 68 266.5 28.0 29 28.8 3.0 89 88.5 9.3 49 148.2 15.6 09 207.9 21.8 69 267.5 28.1														
	29 28.8 3.0 89 88.5 9.3 49 148.2 15.6 09 207.9 21.8 69 267.5 28.1 30 29.8 3.1 90 89.5 9.4 50 149.2 15.7 10 208.8 22.0 70 268.5 28.2														
32	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$														
33	$egin{array}{c c c c c c c c c c c c c c c c c c c $														
34	$egin{array}{c c c c c c c c c c c c c c c c c c c $														
35	34.8	3.7	95	94.5	9.9	55	154.2	16.2	15	213.8	22.5	75	273.5	28.7	
36 37	35. 8 36. 8	3. 8 3. 9	96 97	95. 5 96. 5	10.0 10.1	56 57	155. 1 156. 1	16.3 16.4	16 17	214. 8 215. 8	22. 6 22. 7	76 77	274. 5 275. 5	28. 8 29. 0	
38	37.8	4.0	98	97.5	10.1	58	157. 1	16.5	18	216.8	22. 8	78	276.5	29.1	
39	38.8	4.1	99	98.5	10.3	59	158.1	16.6	19	217.8	22.9	79	277.5	29. 2	
40	39.8	4.2	100	99.5	10.5	60	159.1	16.7	20	218.8	23.0	80	278.5	29.3	
41	40.8	4.3	101	100.4	10.6	161	160.1	16.8	221	219.8	23.1	281	279.5	29.4	
42	41.8	4.4	02	101. 4	10.7	62	161.1	16. 9	22	220.8	23.2	82	280.5	29.5	
43	42.8	4.5	03	102.4	10.8	63	162.1	17.0	23	221.8	23.3	83	281.4	29.6	
44 45	43.8 44.8	4.6	04 05	103. 4 104. 4	10. 9 11. 0	64 65	163. 1 164. 1	17. 1 17. 2	$\begin{array}{c} 24 \\ 25 \end{array}$	222. 8 223. 8	23. 4 23. 5	84 85	282. 4 283. 4	29. 7 29. 8	
46	45.7	4.8	06	105.4	11.1	66	165.1	17.4	26	224.8	23.6	86	284. 4	29.9	
47	46. 7	4.9	07	106. 4	11.2	67	166. 1	17.5	27	225.8	23.7	87	285. 4	30.0	
48	47.7	5.0	08	107. 4	11.3	68	167.1	17.6	28	226.8	23.8	88	286.4	30. 1	
49	48. 7	5.1	09	108.4	11.4	69	168.1	17.7	29	227.7	23. 9	89	287.4	30. 2	
50	49.7	5. 2	10	109.4	11.5	70	169.1	17.8	30	228.7	24.0	90	288.4	30.3	
51	50. 7	5.3	111	110.4	11.6	171	170.1	17.9	231	229.7	24.1	291	289.4	30.4	
52 53	51. 7 52. 7	5. 4 5. 5	12 13	111. 4 112. 4	11.7 11.8	$\begin{array}{c} 72 \\ 73 \end{array}$	171. 1 172. 1	18. 0 18. 1	32 33	230. 7 231. 7	24. 3 24. 4	92 93	290. 4 291. 4	30. 5 30. 6	
54	53.7	5.6	14	113.4	11. 9	74	173.0	18. 2	34	232.7	24.5	94	292. 4	30. 7	
55	54.7	5. 6 5. 7	15	114.4	12.0	75	174.0	18.3	35	233. 7	24.6	95	293.4	30.8	
56	55.7	5.9	16	115.4	12.1	76	175.0	18.4	36	234.7	24.7	96	294.4	30.9	
57	56. 7	6.0	17	116.4	12.2	77	176.0	18.5	37	235. 7	24.8	97	295.4	31.0	
58	57.7	6.1	18	117.4	12.3	78	177.0	18.6	38	236. 7	24.9	98	296.4	31.1	
59	58. 7	6.2	19	118.3	12.4	79	178.0	18.7	39 40	237. 7 238. 7	25.0	99 300	297. 4 298. 4	31. 3	
60	59.7	6.3	20	119.3	12.5	80	179.0	18.8	40	450. 1	25.1	300	290.4	31.4	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
			•			84° ; 0	96°, 264°	2760			-				
						OX (8	10 , 40T	, 410	1 •						

84° (96°, 264°, 276°).

TABLE 2.

Difference of Latitude and Departure for $6^{\rm o}$ (174°, 186°, 354°).

			Dinei	ence or .	Latitud	e and	Depart		0 (1	1,100	, 001			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	299.3	31.5	361	359.0	37.7	421	418.7	44.0	481	478.4	50.3	541	538.0	56.5
02	300.3	31.6	62	360.0	37.8	22	419.7	44.1	82	479.4	50.4	42	539.0	56.6
03	301.3	31.7	63	361.0	37.9	23	420.7	44.2	83	480.4	50.5	43	540.0	56.7
04	302.3	31.8	64	362.0	38.0	24	421.7	44.3	84	481.3	50.6	44	541.0 542.0	56. 8 56. 9
05	303.3	31.9	65 66	363. 0 364. 0	38. 1 38. 3	25 26	422. 7 423. 7	44. 4 44. 5	85 86	482.3 483.3	50.7 50.8	45 46	543.0	57. 0
06 07	304.3	32. 0 32. 1	67	365.0	38.4	27	424.7	44.6	87	484.3	50.9	47	544.0	57.1
08	306.3	32. 2	68	366.0	38.5	28	425.7	44.7	88	485. 3	51.0	48	545.0	57.2
09	307.3	32.3	69	367.0	38. 6	29	426.6	44.8	89	486.3	51.1	49	546.0	57.3
10	308.3	32.4	70	368.0	38. 7	30	427.6	44.9	90	487.3	51.2	50	547.0	57.4
311	309.3	32.5	371	369.0	38.8	431	428.6	45.0	491	488.3	51.3	551	548. 0 549. 0	57. 5 57. 6
12	310.3	32. 6 32. 7	$\begin{array}{c} 72 \\ 73 \end{array}$	370. 0 371. 0	38. 9 39. 0	32 33	429. 6 430. 6	45. 2 45. 3	92 93	489. 3 490. 3	$51.4 \\ 51.5$	$\frac{52}{53}$	550.0	57.7
13 14	311. 3 312. 3	32. 8	74	371. 9	39.1	34	431.6	45.4	94	491.3	51.6	54	551.0	57.9
15	313.3	32.9	75	372.9	39. 2	35	432.6	45.5	95	492.3	51.7	55	552.0	58.0
16	314.3	33.0	76	373.9	39. 3	36	433.6	45.6	96	493.3	51.8	56	553.0	58.1
17	315.3	33.1	77	374.9	39.4	37	434.6	45.7	97	494.3	51.9	57	554.0	58.2
18	316.3	33. 2	78 70	375.9	39.5	38	435.6	45.8	98 99	495. 3 496. 3	52.0 52.1	58 59	555. 0 556. 0	58. 3 58. 4
19 20	317.3 318.2	33.3 33.4	79 80	376. 9 377. 9	39. 6 39. 7	39 40	436. 6 437. 6	45.9 46.0	500	497.3	52. 1	60	556.9	58.5
$\frac{20}{321}$	319. 2	33.6	381	378.9	39.8	441	438.6	46.1	501	498.3	52.4	561	557.9	58.6
22	320. 2	33. 7	82	379.9	39.9	42	439.6	46.2	02	499.3	52.5	62	558.9	58.7
23	321.2	33.8	83	380.9	40.0	43	440.6	46.3	03	500.2	52.6	63	559.9	58.8
24	322. 2	33.9	84	381.9	40.1	44	441.6	46.4	04	501.2	52.7	64	560.9	59.0
25	323. 2	34.0	85	382.9	40. 2 40. 3	45	442.6 443.6	46.5	05 06	502. 2 503. 2	52. 8 52. 9	65 66	561.9 562.9	59. 1 59. 2
26 27	324. 2 325. 2	34. 1 34. 2	86 87	383. 9 384. 9	40.5	46 47	444.5	46. 6 46. 7	07	504. 2	53.0	67	563. 9	59.3
28	326. 2	34.3	88	385. 9	40.6	48	445.5	46.8	08	505. 2	53.1	68	564.9	59.4
29	327. 2	34.4	89	386.9	40.7	49	446.5	46.9	09	506.2	53. 2	69	565.9	59.5
30	328.2	34.5	90	387. 9.	40.8	50	447.5	47.0	10	507.2	53.3	70	566.9	59.6
331 329.2 34.6 391 388.9 40.9 451 448.5 47.1 511 508.2 53.4 571 567.9 59.7 32 330.2 34.7 92 389.9 41.0 52 449.5 47.2 12 509.2 53.5 72 568.9 59.8														
33 331, 2 34, 8 93 390, 8 41, 1 53 450, 5 47, 3 13 510, 2 53, 6 73 569, 9 59, 9														
34 332.2 34.9 94 391.8 41.2 54 451.5 47.5 14 511.2 53.7 74 570.9 60.0														
35 333.2 35.0 95 392.8 41.3 55 452.5 47.6 15 512.2 53.8 75 571.9 60.1														
36	334. 2	35.1	96	393.8	41.4	56	453.5	47.7	16	513. 2	53.9	76	572.9	60. 2
37	335. 2	35.2	97	394.8	41.5	57	454.5	47.8	17	514.2	54.0	77	573.9	60.3
38	336.1	35.3	98 99	395.8	$\begin{array}{c c} 41.6 \\ 41.7 \end{array}$	58 59	455. 5 456. 5	47.9 48.0	18 ⁷	515. 2 516. 2	54. 1 54. 2	78 79	574.9 575.8	60. 4 60. 5
39 40	337. 1 338. 1	35. 4 35. 5	400	396. 8 397. 8	41.8	60	457.5	48.1	20	517.2	54.3	80	576.8	60.6
341	339.1	35.6	401	398.8	41.9	461	458.5	48. 2	521	518. 1	54.5	581	577.8	60.7
42	340.1	35.7	02	399.8	42.0	62	459.5	48.3	22	519.1	54.6	82	578.8	60.8
43	341.1	35.8	03	400.8	42.1	63	460.5	48.4	23	520.1	54.7	83	579.8	60. 9
44	342.1	36.0	04	401. 8 402. 8	42. 2 42. 3	64 65	461. 5 462. 5	48. 5 48. 6	24 25	521. 1 522. 1	54. 8 54. 9	84 85	580. 8 581. 8	61. 1 61. 2
45 46	343. 1 344. 1	36. 1 36. 2	05 06	402.8	42. 3	66	463. 4	48.7	26	523.1	55.0	86	582.8	61. 3
47	345. 1	36.3	07	404.8	42.5	67	464. 4	48.8	27	524.1	55.1	87	583.8	61.4
48	346.1	36.4	08	405.8	42.6	68	465.4	48.9	28	525.1	55. 2	88	584.8	61.5
49	347.1	36.5	09	406.8	42.7	69	466.4	49.0	29	526.1	55.3	89	585.8	61.6
50	348.1	36.6	10	407.8	42.9	70	467.4	49.1	30	527.1	55.4	90	586.8	61. 7
$\begin{array}{c} 351 \\ 52 \end{array}$	349.1	36. 7 36. 8	411 12	408. 7 409. 7	43. 0 43. 1	$\begin{array}{c} 471 \\ 72 \end{array}$	468. 4 469. 4	49. 2 49. 3	531 32	528. 1 529. 1	55. 5 55. 6	591 92	587. 8 588. 8	61. 8 61. 9
53	350.1	36.8	13	410.7	.43. 2	73	470.4	49. 3	33	530.1	55.7	92	589.8	62. 0
54	352.1	37.0	14	411.7	43.3	74	471.4	49.5	34	531.1	55.8	94	590.8	62.1
55	353.1	37.1	15	412.7	43.4	75	472.4	49.6	35	532.1	55.9	95	591.8	62. 2
56	354.0	37.2	16	413.7	43.5	76	473.4	49.8	36	533. 1	56.0	96	592.8	62.3
57	355.0	37.3	17	414.7	43.6	77	474.4	49.9	37	534.1	56.1	97	593.8	62.4
58 59	356.0	37. 4 37. 5	18 19	415.7 416.7	43.7	78 79	475. 4 476. 4	50.0	38 39	535. 1 536. 1	56. 2 56. 3	98 99	594.7 595.7	62. 5 62. 6
60	358.0	37.6	20	417.7	43.9	80	477.4	50. 1	40	537.1	56.4	600	596.7	62.7
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						84" (96°, 264	, 276°)•					

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TABLE 2.

Difference of Latitude and Departure for 7° (173°, 187°, 353°).

											, ,			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.1	61	60.5	7.4	121	120. 1	14.7	181	179.7	22.1	241	239. 2	29.4
$\frac{1}{2}$	$\hat{2}.0$	0.2	62	61.5	7.6	22	121. 1	14.9	82	180.6	22. 2	42	240.2	29.5
3	3.0	0.4	63	62.5	7.7	23	122.1	15.0	83	181.6	22.3	43	241. 2	29.6
4	4.0	0.5	64	63.5	7.8	24	123.1	15.1	84	182.6	22.4	44	242.2	29.7
5	5.0	0.6	65	64.5	7.9	25	124.1	15.2	85	183.6	22.5	45	243.2	29.9
6	6.0	0.7	66	65.5	8.0	26	125.1	15.4	86	184.6	22.7	46	244.2	30.0
7	6.9	0.9	67	66.5	8.2	27	126.1	15.5	87	185.6	22.8	47	245. 2	30. 1
8	7.9	1.0	68	67.5	8.3	28	127.0	15.6	88	186.6	22.9	48	246.2	30.2
9	8.9	1.1	69	68.5	8.4	29	128.0	15.7	89	187.6	23.0	49	247.1	30.3
10	9.9	1.2	_70	69.5	8.5	30	129.0	15.8	90	188.6	23.2	50_	248.1	30.5
11	10.9	1.3	71	70.5	8.7	131	130.0	16.0	191	189.6	23.3	251	249. 1	30.6
12	11.9	1.5	72	71.5	8.8	$\frac{32}{33}$	131. 0 132. 0	16.1	92	190.6	23.4	52	250. 1	30.7
13	12. 9 13. 9	$1.6 \\ 1.7$	73 74	72.5 73.4	8. 9 9. 0	$\frac{33}{34}$	132.0	16. 2 16. 3	93 94	191.6	23.5	53 54	251.1	30.8
14 15	14. 9	1.8	75	74.4	9.1	35	134.0	16.5	95	192.6 193.5	23. 6 23. 8	55	252. 1 253. 1	31. 0 31. 1
16	15. 9	1.9	76	75. 4	9.3	36	135.0	16.6	96	194.5	23. 9	56	254. 1	31. 2
17	16.9	2.1	77	76.4	9.4	37	136.0	16.7	97	195.5	24.0	57	255. 1	31.3
18	17.9	2.2	78	77.4	9.5	38	137.0	16.8	98	196.5	24.1	58	256. 1	31.4
19	18.9	2.3	79	78.4	9.6	39	138.0	16.9	99	197.5	24.3	59	257.1	31.6
20	19.9	2.4	80	79.4	9.7	40	139.0	17.1	200	198.5	24.4	60	258.1	31.7
21	20.8	2.6	81	80.4	9.9	141	139.9	17.2	201	199.5	24.5	261	259.1	31.8
22	21.8	2.7	82	81.4	10.0	42	140.9	17.3	02	200.5	24.6	62	260.0	31.9
23	22.8	2.8	83	82.4	10.1	43	141.9	17.4	03	201.5	24.7	63	261.0	32.1
24	23.8	2.9	84	83.4	10.2	44	142.9	17.5	04	202.5	24.9	64	262.0	32.2
25	24.8	3.0	85	84.4	10.4	45	143.9	17.7	05	203.5	25.0	65	263.0	32.3
26	25.8	3.2	86	85.4	10.5	46	144.9	17.8	06	204.5	25.1	66	264.0	32.4
27	26.8	3.3	87	86.4	10.6	47	145.9	17.9	07	205.5	25.2	67	265.0	32.5
28 29	27.8	3.4	88 89	87. 3 88. 3	10.7 10.8	48 49	146. 9 147. 9	18.0 18.2	08 09	206. 4 207. 4	25.3 25.5	68 69	266.0	32.7
30	28. 8 29. 8	3.7	90	89.3	11.0	50	148.9	18.3	10	208.4	25.6	70	267. 0 268. 0	32.8 32.9
$\frac{-30}{31}$	30.8	3.8	$\frac{-90}{91}$	90.3	11.1	151	149.9	18.4	211	209.4	$\frac{25.0}{25.7}$	$\frac{10}{271}$	269.0	33.0
32	31.8	3.9	92	91.3	11. 2	52	150.9	18.5	12	210.4	25. 8	72	270.0	33.1
33	32.8	4.0	93	92.3	11.3	53	151.9	18.6	13	211.4	26.0	72 73	271.0	33.3
34	33.7	4.1	94	93. 3	11.5	54	152.9	18.8	14	212.4	26.1	74	272.0	33.4
35	34.7	4.3	95	94.3	11.6	55	153.8	18.9	15	213.4	26. 2	75	272. 0 273. 0	33.5
36	35.7	4.4	96	95.3	11.7	56	154.8	19.0	16	214.4	26.3	76	273.9	33.6
.37	36.7	4.5	97	96.3	11.8	57	155.8	19.1	17	215.4	26.4	77	274.9	33.8
38	37.7	4.6	98	97.3	$11.9 \\ 12.1$	58	156.8	19.3	18	216.4	26.6	78	275.9	33. 9
39	38.7	4.8	99	98.3	12.1	59	157.8	19.4	19	217.4	26.7	79	276.9	34.0
40	39. 7	4.9	100	99.3	12. 2	60	158.8	19.5	20	218.4	26.8	80	277.9	34.1
41	40.7	5.0	101	100.2	12.3	161	159.8	19.6	221	219.4	26. 9	281	278.9	34. 2
42	41.7	5.1	02	$101.2 \\ 102.2$	12.4	62 63	160.8	19.7	22 23	$220.3 \\ 221.3$	27.1	82	279. 9 280. 9	34.4
43 44	42.7 43.7	5.2	03 04	102. 2	$12.6 \\ 12.7$	64	161. 8 162. 8	19.9 20.0	23	221.3	27. 2 27. 3	83 84	280. 9	34. 5 34. 6
45	44.7	5.5	05	103.2	12.8	65	163.8	20.0	25	223.3	27.4	85	282 0	34. 7
46	45.7	5.6	06	105, 2	12.9	66	164.8	20. 2	26	224.3	27.5	86	282. 9 283. 9	34.9
47	46.6	5.7	07	106.2	13.0	67	165.8	20. 4	27	225.3	27.7	87	284.9	35.0
48	47.6	5.8	08	107.2	13. 2	68	166.7	20.5	28	226.3	27.8	88	285.9	35. 1
49	48.6	6.0	09	108.2	13.3	69	167.7	20.6	29	227.3	27.9	89	286.8	35. 2
50	49.6	6.1	10	109.2	13.4	70	168.7	20.7	30	228.3	28.0	90	287.8	35.3
51	50.6	6.2	111	110.2	13.5	171	169.7	20.8	231	229.3	28. 2	291	288.8	35.5
52	51.6	6.3 6.5	12	111.2	13.6	72	170. 7	21.0	32	230.3	28.3	92	289.8	35.6
53	52.6	6.5	13	112.2	13.8	73	171.7	21.1	33	.231.3	28.4	93	290.8	35. 7
54	53.6	6.6	14	113.2	13.9	74	172.7	21.2	34	232. 3	28.5	94	291.8	35.8
55 56	54.6	6.7	15	114.1	14.0	75 76	173.7	21.3	35	233, 2	28.6	95	292.8	36.0
56 57	55. 6 56. 6	6.8	$\begin{array}{c} 16 \\ 17 \end{array}$	115. 1 116. 1	14. 1 14. 3	76 77	174. 7 175. 7	21.4	$\frac{36}{37}$	234. 2 235. 2	28. 8 28. 9	96 97	293.8 294.8	36. 1 36. 2
58	57.6	7.1	18	117.1	14. 3	78	176.7	21. 7	38	236. 2	28.9	98	294.8	36. 2
59	58.6	7. 2	19	118.1	14.5	79	177.7	21.8	39	237.2	29.1	99	296.8	36.4
60	59.6	7.3	20	119.1	14.6	80	178. 7	21.9	40	238. 2	29.2	300	297.8	36.6
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
 	1	1	•			090 /		1			1		·	
						00 (97°, 263	, 211).					

83° (97°, 263°, 277°).

TABLE 2.

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Difference of Latitude and Departure for 7° (173°, 187°, 353°).

			Zinci	ence or					. (-	, 10,	,	,.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301 02 03 04 05	298. 7 299. 7 300. 7 301. 7 302. 7	36. 7 36. 8 36. 9 37. 0 37. 2	361 62 63 64 65	358. 3 359. 3 360. 3 361. 3 362. 3	44. 0 44. 1 44. 2 44. 4 44. 5	421 22 23 24 25	417. 9 418. 8 419. 8 420. 8 421. 8	51. 3 51. 4 51. 5 51. 7 51. 8	481 82 83 84 85	477. 4 478. 4 479. 4 480. 4 481. 4	58. 6 58. 7 58. 8 59. 0 59. 1	541 42 43 44 45	537. 0 537. 9 538. 9 539. 9 540. 9	65. 9 66. 0 66. 2 66. 3 66. 4
06 07 08 09 10	303. 7 304. 7 305. 7 306. 7 307. 7	37. 3 37. 4 37. 5 37. 7 37. 8	66 67 68 69 70	363. 3 364. 3 365. 2 366. 2 367. 2	44. 6 44. 7 44. 8 45. 0 45. 1	26 27 28 29 30	422. 8 423. 8 424. 8 425. 8 426. 8	51. 9 52. 0 52. 2 52. 3 52. 4	86 87 88 89 90	482. 4 483. 4 484. 3 485. 3 486. 3	59. 2 59. 4 59. 5 59. 6 59. 7	46 47 48 49 50	541. 9 542. 9 543. 9 544. 9 545. 9	66. 6 66. 7 66. 8 66. 9 67. 0
311 12 13 14 15 16 17 18	308. 7 309. 7 310. 7 311. 7 312. 6 313. 6 314. 6 315. 6	37. 9 38. 0 38. 1 38. 3 38. 4 38. 5 38. 6 38. 7	371 72 73 74 75 76 77 78	368. 2 369. 2 370. 2 371. 2 372. 2 373. 2 374. 2 375. 2	45. 2 45. 3 45. 5 45. 6 45. 7 45. 8 45. 9 46. 1	431 32 33 34 35 36 37 38	427. 8 428. 8 429. 8 430. 8 431. 7 432. 7 433. 7	52. 5 52. 6 52. 8 52. 9 53. 0 53. 1 53. 3	491 92 93 94 95 96 97 98	487. 3 488. 3 489. 3 490. 3 491. 3 492. 3 493. 3 494. 3	59. 8 59. 9 60. 1 60. 2 60. 3 60. 5 60. 6	551 52 53 54 55 56 57 58	546. 9 547. 9 548. 9 549. 9 550. 8 551. 8 552. 8 553. 8	67. 1 67. 2 67. 4 67. 5 67. 6 67. 8 67. 9
$ \begin{array}{r} 19 \\ 20 \\ \hline 321 \\ 22 \\ 23 \end{array} $	316. 6 317. 6 318. 6 319. 6 320. 6	38. 9 39. 0 39. 1 39. 2 39. 4	79 80 381 82 83	376. 2 377. 2 378. 1 379. 1 380. 1	46. 2 46. 3 46. 4 46. 5 46. 7	39 40 441 42 43	$ \begin{array}{r} 435.7 \\ 436.7 \\ \hline 437.7 \\ 438.7 \\ 439.7 \end{array} $	53. 5 53. 6 53. 7 53. 9 54. 0	99 500 501 02 03	495. 3 496. 3 497. 2 498. 2 499. 2	$60.8 \\ 61.0 \\ \hline 61.1 \\ 61.2 \\ 61.3$	59 60 561 62 63	554. 8 555. 8 556. 8 557. 8 558. 8	68. 1 68. 3 68. 4 68. 5 68. 6
24 25 26 27 28 29 30	321. 6 322. 6 323. 6 324. 6 325. 5 326. 5 327. 5	39. 5 39. 6 39. 7 39. 8 40. 0 40. 1 40. 2	84 85 86 87 88 89 90	381. 1 382. 1 383. 1 384. 1 385. 1 386. 1 387. 1	46. 8 46. 9 47. 0 47. 2 47. 3 47. 4 47. 5	44 45 46 47 48 49 50	440. 7 441. 7 442. 7 443. 7 444. 7 445. 6 446. 6	54. 1 54. 2 54. 3 54. 5 54. 6 54. 7 54. 8	04 05 06 07 08 09 10	500. 2 501. 2 502. 2 503. 2 504. 2 505. 2 506. 2	61. 4 61. 5 61. 6 61. 8 61. 9 62. 0 62. 1	64 65 66 67 68 69 70	559. 8 560. 8 561. 8 562. 8 563. 8 564. 8 565. 8	68. 7 68. 9 69. 0 69. 1 69. 2 69. 3 69. 4
331 32 33 34 35 36 37 38 39	328. 5 329. 5 330. 5 331. 5 332. 5 333. 5 334. 5 335. 5 336. 5	40.3 40.5 40.6 40.7 40.8 40.9 41.1 41.2	391 92 93 94 95 96 97 98 99	388.1 389.1 390.1 391.1 392.0 393.0 394.0 395.0 396.0	47. 6 47. 8 47. 9 48. 0 48. 1 48. 3 48. 4 48. 5	451 52 53 54 55 56 57 58 59	447. 6 448. 6 449. 6 450. 6 451. 6 452. 6 453. 6 454. 6	55. 0 55. 1 55. 2 55. 3 55. 4 55. 6 55. 7 55. 8	511 12 13 14 15 16 17 18 19	507. 2 508. 2 509. 2 510. 2 511. 1 512. 1 513. 1 514. 1 515. 1	62. 3 62. 4 62. 5 62. 6 62. 7 62. 9 63. 0 63. 1	571 72 73 74 75 76 77 78 79	566. 7 567. 7 568. 7 569. 7 570. 7 571. 7 572. 7 573. 7 574. 7	69. 6 69. 7 69. 8 69. 9 70. 1 70. 2 70. 3 70. 4 70. 5
341 42 43 44 45 46 47 48 49 50	337. 5 338. 4 339. 4 340. 4 341. 4 342. 4 343. 4 344. 4 345. 4 346. 4 347. 4	41. 4 41. 6 41. 7 41. 8 41. 9 42. 0 42. 2 42. 3 42. 4 42. 5 42. 6	400 401 02 03 04 05 06 07 08 09 10	397. 0 398. 0 399. 0 400. 0 401. 0 402. 0 403. 0 404. 0 405. 0 405. 9 406. 9	48. 7 48. 9 49. 0 49. 1 49. 2 49. 4 49. 5 49. 6 49. 7 49. 8 50. 0	60 461 62 63 64 65 66 67 68 69 70	456. 6 457. 6 458. 5 459. 5 460. 5 461. 5 462. 5 463. 5 464. 5 465. 5 466. 5	56. 1 56. 2 56. 3 56. 4 56. 5 56. 7 56. 8 56. 9 57. 0 57. 2 57. 3	20 521 22 23 24 25 26 27 28 29 30	516. 1 517. 1 518. 1 519. 1 520. 1 521. 1 522. 1 523. 1 524. 1 525. 0 526. 0	63. 4 63. 5 63. 6 63. 7 63. 8 64. 0 64. 1 64. 2 64. 3 64. 5 64. 6	581 82 83 84 85 86 87 88 89	575. 7 576. 7 577. 6 578. 6 579. 6 580. 6 581. 6 582. 6 583. 6 584. 6 585. 6	70. 7 70. 8 70. 9 71. 0 71. 2 71. 3 71. 4 71. 5 71. 6 71. 8 71. 9
351 52 53 54 55 56 57 58 59 60	348. 4 349. 4 350. 4 351. 4 352. 3 353. 3 354. 3 355. 3 356. 3 357. 3	42. 8 42. 9 43. 0 43. 1 43. 3 43. 4 43. 5 43. 6 43. 7 43. 9	411 12 13 14 15 16 17 18 19 20	407. 9 408. 9 409. 9 410. 9 411. 9 412. 9 413. 9 414. 9 415. 9 416. 9	50. 1 50. 2 50. 3 50. 4 50. 6 50. 7 50. 8 50. 9 51. 1 51. 2	471	467. 5 468. 5 469. 5 470. 5 471. 5 472. 4 473. 4 474. 4 475. 4 476. 4	57. 4 57. 5 57. 6 57. 8 57. 9 58. 0 58. 1 58. 2 58. 4 58. 5	531 32 33 34 35 36 37 38 39 40	527.0	64. 7 64. 8 64. 9 65. 1 65. 2 65. 3 65. 4 65. 6 65. 7 65. 8	591	586. 6 587. 6 588. 6 589. 6 590. 6 591. 5 592. 5 593. 5 594. 5	72. 0 72. 1 72. 2 72. 4 72. 5 72. 6 72. 7 72. 9 73. 0 73. 1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						83° (§	97°, 263°	, 277°)).					

TABLE 2.

Difference of Latitude and Departure for 8° (172°, 188°, 352°).

		-												
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.1	61	60.4	8.5	121	119.8	16.8	181	179. 2	25. 2	241	238. 7	33. 5
$\hat{2}$	2.0	0.3	62	61.4	8.6	22	120.8	17.0	82	180. 2	25.3	42	239.6	33.7
3	3.0	0.4	63	62.4	8.8	23	121.8	17.1	83	181. 2	25.5	43	240.6	33.8
4	4.0	0.6	64	63.4	8.9	24	122.8	17.3	84	182. 2	25.6	44	241.6	34.0
5	5.0	0.7	65	64.4	9.0	25	123.8	17.4	85	183.2	25.7	45	242.6	34.1
6	5.9	0.8	66	65. 4	9.2	26	124.8	17.5	86	184.2	25.9	46	243.6	34.2
7	6.9	1.0	67	66.3	9.3	27	125.8	17.7	87	185. 2	26.0	47	244.6	34.4
8	7.9	1.1	68	67.3	9.5	28	126.8	17.8	88	186. 2	26. 2	48	245.6	34.5
9	8.9	1.3	69	68. 3 69. 3	9.6	29	127. 7 128. 7	18.0	89	187. 2	26.3	49	246.6	34.7
10	$\frac{9.9}{10.0}$	1.4	70	$\frac{-69.3}{70.3}$	9.7	30		18.1	90	188.2	26.4	50	247.6	34.8
$\begin{array}{c c} 11 \\ 12 \end{array}$	10. 9 11. 9	1.5 1.7	71 72	70.3	$9.9 \\ 10.0$	$\frac{131}{32}$	129. 7 130. 7	18. 2 18. 4	$\frac{191}{92}$	189. 1 190. 1	26. 6 26. 7	$\begin{array}{c} 251 \\ 52 \end{array}$	$248.6 \\ 249.5$	34. 9 35. 1
13	12.9	1.8	73	72.3	10.0	33	131.7	18.5	93	191.1	26. 9	53	250.5	35.9
14	13. 9	1.9	74	73. 3	10.3	34	132. 7	18.6	94	192.1	27. 0	54	251.5	35. 2 35. 3
15	14.9	2. 1	75	74.3	10.4	35	133.7	18.8	95	193. 1	27. 1	$5\hat{5}$	252.5	35.5
16	15.8	2.2	76	75.3	10.6	36	134.7	18.9	96	194. 1	27.3	56	253. 5	35.6
17	16.8	2.4	77	76.3	10.7	37	135. 7	19.1	97	195.1	27.4	57	254.5	35.8
18	17.8	2.5	78	77.2	10.9	38	136.7	19.2	98	196.1	27.6	58	255.5	35.9
19	18.8	2.6	79	78. 2	11.0	39	137. 7	19.3	99	197.1	27.7	59	256.5	36.0
20	19.8	2.8	80	79.2	11.1	40	138.6	19.5	200	198. 1	27.8	60	257.5	36.2
21	20.8	2.9	81	80. 2	11.3	141	139.6	19.6	201	199.0	28.0	261	258.5	36.3
22	21.8	3.1	82	81. 2 82. 2	11.4	42	140.6	19.8	02	200.0	28.1	62	259.5	36.5
$\begin{bmatrix} 23 \\ 24 \end{bmatrix}$	22. 8 23. 8	3. 2 3. 3	83 84	82. 2	$11.6 \\ 11.7$	43 44	$141.6 \\ 142.6$	19.9 20.0	$03 \\ 04$	$201.0 \\ 202.0$	28. 3 28. 4	63 64	260. 4 261. 4	36. 6 36. 7
25	24.8	3.5	85	84. 2	11. 7	45	142.6	20.0 20.2	05	203.0	28.5	65	262. 4	36.9
26	25.7	3.6	86	85. 2	12.0	46	144.6	20. 2	06	204.0	28.7	66	263. 4	37.0
27	26. 7	3.8	87	86. 2	12. 1	47	145.6	20.5	07	205. 0	28.8	67	264. 4	37. 2
28	27.7	3. 9	88	87.1	12. 2	48	146.6	20.6	08	206.0	28.9	68	265. 4	37.3
29	28.7	4.0	89	88.1	12.4	49	147.5	20.7	09	207.0	29.1	69	266.4	37.4
30	29.7	4.2	90	89. 1	12.5	50	148.5	20.9	10	208.0	29. 2	70	267.4	37.6
31	30.7	4.3	91	90.1	12.7	151	149.5	21.0	211	208.9	29.4	271	268.4	37.7
32	31.7	4.5	92	91.1	12.8	$\frac{52}{52}$	150.5	21. 2	12	209. 9	29.5	72	269.4	37.9
33	32.7	4.6	93	92.1	12.9	53	151.5	21.3	13	210.9	29.6	73	270.3	38.0
34 35	33. 7 34. 7	4.7	94	93. 1 94. 1	13. 1 13. 2	54 55	152. 5 153. 5	$21.4 \\ 21.6$	14 15	211. 9 212. 9	29.8 29.9	74 75	$271.3 \\ 272.3$	38.1 38.3
36	35.6	5.0	95 96	95. 1	13. 4	56	154. 5	$\frac{21.0}{21.7}$	16	213. 9	30. 1	76	273.3	38.4
37	36.6	5. 1	97	96. 1	13.5	57	155. 5	21.9	17	214. 9	30. 2	77	274.3	38.6
38	37.6	5.3	98	97. 0	13.6	58	156.5	22.0	18	215. 9	30.3	78	275.3	38.7
39	38. 6 39. 6	5.4	99	98.0	13.8	59	157.5	22.1	19	216.9	30.5	79	276.3	38.8
40	39.6	5.6	100	99.0	13.9	60	158.4	22.3	20	217.9	30.6	80	277.3	39.0
41	40.6	5.7	101	100.0	14.1	161	159.4	22.4	221	218.8	30.8	281	278.3	39.1
42	41.6	5.8	02	101.0	14.2	62	160. 4	22.5	22	219.8	30.9	82	279.3	39.2
43	42.6	6.0	03	102.0	14.3	63	161.4	22.7	23	220.8	31.0	83	280. 2	39.4
44	43.6 44.6	6. 1 6. 3	$04 \\ 05$	103.0	14.5	64 65	162. 4 163. 4	22.8	24 25	$221.8 \\ 222.8$	31. 2 31. 3	84	281. 2 282. 2	39.5
45 46	45.6	6.4	06	104. 0 105. 0	14.6 14.8	65 66	164.4	$23.0 \\ 23.1$	$\frac{25}{26}$	223.8	31.5	85 86	283. 2	39. 7 39. 8
47	46.5	6.5	07	106.0	14.9	67	165. 4	23. 2	$\frac{20}{27}$	224.8	31.6	87	284. 2	39.9
48	47.5	6.7	08	106. 9	15.0	68	166. 4	23. 4	$\frac{28}{28}$	225.8	31.7	88	285.2	40.1
49	48.5	6.8	09	107.9	15.2	69	167. 4	23.5	29	226.8	31.9	89	286. 2	40.2
50	49.5	7.0	10	108.9	15.3	70	168.3	23.7	30	227.8	32.0	90	287.2	40.4
51	50.5	7.1	111	109.9	15.4	171	169.3	23.8	231	228.8	32. 1	291	288. 2	40.5
52	51.5	7. 2	12	110.9	15.6	72	170.3	23. 9	32	229. 7	32. 3	92	289. 2	40.6
53	52.5	7.4	13	111.9	15.7	73	171.3	24.1	33	230. 7	32.4	93	290.1	40.8
54	53.5	7.5	14	112.9	15. 9	74	172.3	24. 2	34	231.7	32.6	94	291.1	40.9
55	54.5	7. 7 7. 8	15	113. 9 114. 9	16. 0 16. 1	75 76	173.3 174.3	$24.4 \\ 24.5$	35 36	232. 7 233. 7	32. 7 32. 8	95 96	292. 1 293. 1	$41.1 \\ 41.2$
56 57	55. 5 56. 4	7.8	16 17	114.9	16. 3	76 77	175.3	24.6	30 37	234. 7	33.0	97	294.1	41. 3
58	57.4	8.1	18	116.9	16. 4	78	176.3	24. 8	38	235. 7	33. 1	98	295. 1	41.5
59	58. 4	8. 2	19	117.8	16. 6	79	177.3	24. 9	39	236. 7	33. 3	99	296. 1	41.6
60	59.4	8.4	20	118.8	16.7	80	178. 2	25. 1	40	237.7	33.4	300	297.1	41.8
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
I						290 (0	080 2629	9700	1					

82° (98°, 262°, 278°).

TABLE 2.

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Difference of Latitude and Departure for 8° (172°, 188°, 352°).

			ріпеі	rence of	Lautu	ie and	Depart	ure for	0 (112 , 100	, 002	٠.		
Dist.	Lat.	Dep.												
301	298.0	41.9	361	357.5	50. 2	421	416. 9	58.6	481	476.3	66. 9	541	535.7	75.2
02	299.0	42.0	62	358.5	50.4	22	417.9	58.7	82	477.3	67.1	42	536.7	75.4
03	300.0	42.2	63	359.4	50.5	23	418.9	58.9	83	478.3	67.2	43	537. 7	75.5
04	301.0	42.3	64	360.4	50.7	24	419.8	59.0	84	479.3	67.4	44	538.7	75. 7
05	302.0	42.5	65	361.4	50.8	25	420.8	59. 2	85	480.3	67.5	45	539.7	75.8
06	303.0	42.6 42.7	66	362.4	50.9	26 27	421. 8 422. 8	59.3	86	481. 2 482. 2	67.6	46	540.6 541.6	75. 9
07 08	304. 0 305. 0	42. 9	67 68	363. 4 364. 4	51. 2	28	423.8	59. 4 59. 6	87 88	483. 2	67.8	47 48	542.6	76. 1 76. 2
09	306.0	43.0	69	365. 4	51.4	29	424.8	59.7	89	484. 2	68.1	49	543.6	76.4
10	307.0	43.1	70	366. 4	51.5	30	425.8	59.8	90	485. 2	68. 2	50	544.6	76.5
311	307.9	43.3	371	367.4	51.6	431	426.8	60.0	491	486. 2	68.3	551	545.6	76.6
12	308.9	43. 4	72	368. 4	51.8	32	427.8	60.1	92	487. 2	68.5	52	546 6	76.8
13	309.9	43.6	73	369.3	51.9	33	428.8	60.3	93	488. 2	68.6	53	546. 6 547. 6	76.9
14	310.9	43.7	74	370.3	52.1	34	429.8	60.4	94	489. 2	68.8	54	548.6	77.1
15	311.9	43.8	75	371.3	52. 2	35	430.7	60.5	95	490.2	68.9	55	549.6	77.2
16	312.9	44.0	76	372.3	52.3	36	431.7	60.7	96	491.2	69.0	56	550.6	77.4
17	313.9	44.1	77	373.3	52.5	37	432.7	60.8	97	492.1	69. 2	57	551.5	77.5
18	314.9	44.3	78	374.3	52.6	38	433.7	61.0	98	493.1	69.3	58	552.5	77.6
19	315.9	44.4	79	375.3	52. 7	39	434.7	61.1	99	494.1	69.5	59	553.5	77.8
20	316.9	44.5	80	376.3	52.9	40	435.7	61.2	500	495.1	69.6	60	554.5	77.9
321	317.9	44.7	381	377.3	53.0	441	436.7	61.4	501	496.1	69.7	561	555.5	78. 1
22	318.8	44.8	82	378.3	53.2	42	437.7	61.5	02	497.1	69.9	62	556.5	78.2
23	319.8	45.0	83	379. 2	53.3	43	438.7	61.7	03	498.1	70.0	63	557.5	78. 3
24	320.8	45.1	84	380. 2	53.4	44	439.7	61.8	04	499.1	70.2	64	558.5	78.5
25	321.8	45. 2	85	381. 2	53.6	45	440.6	61.9	05	500.1	70.3	65	559.5	78.6
26	322.8	45.4	86	382. 2	53.7	46	441.6	62.1	06	501.0	70.4	66	560.5	78.8
27	323.8	45.5	87	383. 2 384. 2	53.9 54.0	47 48	442.6	62. 2	07 08	502.0	70.6 70.7	67	561.5	78.9
28 29	324. 8 325. 8	45.7 45.8	88 89	385. 2	54.1	49	443. 6 444. 6	$62.4 \\ 62.5$	09	503. 0 504. 0	70.7	68 69	562. 5 563. 5	79.0 79.1
30	326.8	45.9	90	386. 2	54.3	50	445.6	62.6	10	505.0	70.9	70	564.5	79.3
331	327.8	46.1	391	387.2	54.4	451	446.6	62.8	511	506.0	71.1	571	565. 4	79.4
32	328.7	46. 2	92	388. 2	54.6	52	447.6	62.9	12	507.0	71. 2	72	566. 4	79.6
33	329.7	46.3	93	389. 1	54.7	53	448.6	63.0	13	508.0	71.4	73	567. 4	79.7
34	330. 7	46.5	94	390. 1	54.8	54	449.6	63. 2	14	509.0	71.5	74	568. 4	79.8
35	331.7	46.6	95	391.1	55.0	.55	450.5	63.3	15	510.0	71.6	75	569.4	80.0
36	332.7	46.8	96	392. 1	55.1	56	451.5	63.5	16	510.9	71.8	76	570.4	80.1
37	333.7	46.9	97	393.1	55.3	57	452.5	63.6	17	511.9	71.9	77	571.4	80. 2
38	334.7	47.0	98	394.1	55.4	58	453.5	63.7	18	512.9	72.0	78	572.4	80.4
39	335.7	47.2	99	395.1	55.5	59	454.5	63. 9	19	513.9	72.2	79	573.4	80.5
40	336.7	47.3	400	396.1	55.7	60	455.5	64.0	_20_	514.9	72.3	80	574.4	80.6
341	337.7	47.5	401	397.1	55.8	461	456.5	64. 2	521	515.9	72.4	581	575.4	80.8
42	338.6	47.6	02	398.1	56.0	62	457.5	64.3	22	516.9	72.6	82	576.4	80.9
43	339.6	47.7	03	399.1	56.1	63	458.5	64.4	23	517. 9	72.8	83	577.4	81. 1
44	340.6	47.9	04	400.0	56.2	64	459.5	64.6	24	518.9	73.0	84	578.4	81.3
45 46	341. 6 342. 6	48. 0 48. 2	05 06	401. 0 402. 0	56. 4 56. 5	65	460.4	64.7	25	519.9	73. 1 73. 2	85	579.4	81.4
47	343.6	48.3	07	403.0	56.6	66 67	461. 4 462. 4	64. 9 65. 0	26 27	520. 9 521. 8	73. 4	86 87	580.3 581.3	81.6 81.7
48	344.6	48.4	08	404.0	56.8	68	463.4	65.1	28	521.8 522.8	73. 5	88	582.3	81. 8
49	345.6	48.6	09	405.0	56.9	69	464.4	65.3	29	523.8	73. 7	89	583.3	82. 0
50	346.6	48.7	10	406.0	57. 1	70	465.4	65.4	30	524.8	73.8	90	584.3	82. 1
351	347.6	48. 9	411	407.0	57.2	471	466. 4	65.6	531	525.8	73. 9	591	585.3	82. 2
52	348.5		12		57.3	72	467.4		32	526.8	74.1		586.3	82. 4
53	349.5	49. 1	13	409.0	57.5	73	468.4	65.8	33	527.8	74. 2	93	587.3	82.5
54	350.5	49.3	14	409.9	57.6	74	469.4	66.0	34	528.8	74.3	94	588.3	82.6
55	351.5	49.4	15	410.9	57.8	75	470.4	66.1	35	529.8	74.5	95	589.3	82.8
56	352.5	49.5	16	411.9	57.9	76	471.3	66. 2	36	530.8	74.6	96	590.3	83.0
57	353.5	49.7	17	412.9	58.0	77	472.3	66.4	37	531.7	74.7	97	591.2	83. 1
58	354.5	49.8	18	413.9	58.2	78	473.3	66.5	38	532.7	74.9	98	592. 2	83. 2
59	355.5	50.0	19	414.9	58.3	79	474.3	66.7	39	533.7	75.0	99	593. 2	83.3
60	356.5	50.1	20	415.9	58.5	80	475.3	66.8	40	534.7	75.1	600	594.2	83.5
00														
Dist.	Dep.	Lat.												

82° (98°, 262°, 278°).

 ${\bf TABLE~2}.$ Difference of Latitude and Departure for 9° (171°, 189°, 351°).

										· -	,			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.2	61	60. 2	9.5	121	119.5	18. 9	181	178.8	28.3	241	238.0	37.7
$\frac{1}{2}$	2.0	0. 2	62	61.2	9.7	22	120.5	19.1	82	179.8	28.5	42	239.0	37.9
3	3.0	0.5	63	62.2	9.9	23	121.5	19.2	83	180.7	28.6	43	240.0	38.0
4	4.0	0.6	64	63. 2	10.0	24	122.5	19.4	84	181.7	28.8	44	241.0	38. 2
5	4.9	0.8	65	64. 2	10.2	25	123.5	19.6	85	182.7	28.9	45	242.0	38.3
6	5.9	0.9	66	65. 2	10.3	26	124. 4	19.7	86	183.7	29.1	46	243.0	38.5
7	6.9	1.1	67	66. 2	10.5	27	125. 4	19.9	87	184.7	29.3	47	244.0	38.6
8	7. 9	1.3	68	67. 2	10.6	28	126.4	20.0	88	185.7	29.4	48	244.9	38.8
9 10	$8.9 \\ 9.9$	$\begin{array}{c c} 1.4 \\ 1.6 \end{array}$	69 70	68. 2 69. 1	10.8 11.0	29 30	127.4 128.4	$20.2 \\ 20.3$	89 90	186. 7 187. 7	$\begin{bmatrix} 29.6 \\ 29.7 \end{bmatrix}$	49 50	245. 9 246. 9	39. 0 39. 1
11	$\frac{0.0}{10.9}$	$\frac{1.0}{1.7}$	$\frac{70}{71}$	$\frac{-00.1}{70.1}$	11.1	131	129.4	$\frac{20.5}{20.5}$	191	188.6	29.9	$\frac{50}{251}$	$\frac{240.3}{247.9}$	39.3
12	11.9	1.9	72	71.1	11.3	32	130. 4	20.6	92	189.6	30.0	52	248. 9	39.4
13	12.8	2.0	73	72. 1	11.4	33	131.4	20.8	93	190.6	30.2	53	249.9	39.6
14	13.8	2. 2	74	73.1	11.6	34	132.4	21.0	94	191.6	30.3	54	250.9	39.7
15	14.8	2, 3	75	74.1	11.7	35	133. 3	21.1	95	192.6	30.5	55	251.9	39.9
16	15.8	2.5	76	75.1	11.9	36	134.3	21.3	96	193.6	30.7	56	252.8	40.0
17	16.8	2.7	77	76. 1	12.0	37	135. 3	21.4	97	194.6	30.8	57	253.8	40.2
18	17.8	2.8	78	77.0	12.2	38	136.3	21.6	98	195.6	31.0	58	254.8	40.4
$\begin{array}{ c c c } 19 \\ 20 \\ \end{array}$	18.8 19.8	3. 0 3. 1	79 80	78. 0 79. 0	$12.4 \\ 12.5$	39 40	137. 3 138. 3	$21.7 \\ 21.9$	$\frac{99}{200}$	196. 5 197. 5	31. 1 31. 3	59 60	255. 8 256. 8	40.5 40.7
$\frac{20}{21}$	$\frac{10.0}{20.7}$	3.3	81	80.0	$\frac{12.0}{12.7}$	141	139.3	$\frac{21.3}{22.1}$	$\frac{200}{201}$	198.5	31.4	261	257.8	40.8
22	21.7	3.4	82	81.0	12.8	42	140.3	22. 2	02	199.5	31.6	62	258.8	41.0
23	22.7	3.6	83	82.0	13.0	43	141.2	22.4	03	200.5	31.8	63	259.8	41.1
24	23. 7	3.8	84	83.0	13.1	44	142.2	22.5	04	201.5	31.9	64	260.7	41.3
25	24.7	3.9	85	84.0	13.3	45	143. 2	22.7	05	202.5	32.1	65	261. 7	41.5
26	25. 7	4.1	86	84.9	13.5	46	144. 2	22.8	06	203. 5	32.2	66	262. 7	41.6
27 28	$26.7 \\ 27.7$	4. 2 4. 4	87 88	85. 9 86. 9	13. 6 13. 8	47 48	$145.2 \\ 146.2$	$23.0 \\ 23.2$	07 08	204. 5 205. 4	32. 4 32. 5	67 68	263. 7 264. 7	41.8
29	28.6	4.5	89	87.9	13. 9	49	147. 2	23. 3	09	206. 4	32. 7	69	265. 7	42.1
30	29.6	4.7	90	88. 9	14.1	50	148. 2	23.5	10	207. 4	32. 9	70	266.7	42.2
31	30.6	4.8	91	89. 9	14. 2	151	149.1	23.6	211	203.4	33.0	271	267.7	42.4
32	31.6	5.0	92	90.9	14.4	52	150.1	23.8	12	209.4	33. 2	72	268.7	42.6
33 34	32. 6 33. 6	5. 2 5. 3	$\frac{93}{94}$	$91.9 \\ 92.8$	14.5 14.7	53 54	151. 1 152. 1	$23.9 \\ 24.1$	13 14	210. 4 211. 4	33. 3 33. 5	73 74	269. 6 270. 6	42. 7 42. 9
35	34.6	5.5	95	93.8	14. 9	55	153. 1	24. 1	15	212.4	33.6	75	271.6	43.0
36	35. 6	5.6	96	94.8	15.0	56	154.1	24. 4	16	213, 3	33. 8	76	272.6	43. 2
37	36. 5	5.8	97	95.8	15.2	57	155. 1	24.6	17	214.3	33. 9	77	273.6	43.3
38	37.5	5. 9	98	96.8	15.3	58	156. 1	24.7	18	215.3	34.1	78	274.6	43.5
39	38. 5	6.1	99	97.8	15.5	59	157.0	24.9	19	216.3	34.3	79	275.6	43.6
40	39.5	6.3	100	98.8	15.6	60	158.0	25.0	20	217.3	34.4	80	276.6	43.8
41	40.5	6. 4 6. 6	101 02	99. 8 100. 7	15. 8 16. 0	161	159. 0 160. 0	25. 2 25. 3	$\begin{array}{c} 221 \\ 22 \end{array}$	218.3 219.3	34. 6 34. 7	$\begin{array}{c} 281 \\ 82 \end{array}$	277. 5 278. 5	44. 0 44. 1
42 43	$41.5 \\ 42.5$	6.7	03	100.7	16. 0	$\frac{62}{63}$	161.0	25. 5	23	220.3	34.9	83	279.5	44.3
44	43. 5	6.9	04	102.7	16.3	64	162.0	25.7	$\frac{23}{24}$	221. 2	35.0	84	280.5	44.4
45	44.4	7.0	05	103. 7	16.4	65	163. 0	25. 8	25	222. 2	35. 2	85	281.5	44.6
46	45.4	7.2	06	104.7	16.6	66	164.0	26.0	26	223. 2	35.4	86	282.5	44.7
47	46. 4	7.4	07	105.7	16.7	67	164.9	26. 1	27	224. 2	35. 5	87	283.5	44.9
48	47.4	7.5	08	106.7	16.9	68	165. 9	26.3	28	225. 2	35. 7	88	284.5	45.1
49 50	48. 4 49. 4	7. 7 7. 8	09 10	107. 7 108. 6	17. 1 17. 2	69 70	166. 9 167. 9	26. 4 26. 6	29 30	226.2 227.2	35. 8 36. 0	89 90	285. 4 286. 4	45. 2 45. 4
51	$\frac{49.4}{50.4}$	8.0	111	109.6	17.4	171	168. 9	26.8	231	$\frac{221.2}{228.2}$	36.1	291	287.4	45. 5
52	51.4	8. 1	12	110.6		72	169. 9	26. 9	32	229. 1	36. 3	92	288.4	45.7
53	52.3	8.3	13	111.6	17.7	73	170.9	27.1	33	230. 1	36.4	93	289.4	45.8
54	53.3	8.4	14	112.6	17.8	74	171.9	27.2	34	231.1	36.6	94	290.4	46.0
55	54.3	8.6	15	113.6	18.0	75	172.8	27.4	35	232. 1	36.8	95	291.4	46.1
56 57	55. 3 56. 3	8.8 8.9	$\begin{array}{c} 16 \\ 17 \end{array}$	114. 6 115. 6	18. 1 18. 3	76	173.8 174.8	$27.5 \\ 27.7$	36 37	233. 1 234. 1	36. 9 37. 1	96 97	292. 4 293. 3	46.3
58	57.3	9.1	18	116.5	18.5	77 78	175.8	27.8	38	234.1 235.1	37. 2	98	293. 3	46.6
59	58.3	9. 2	19	117.5	18.6	79	176.8	28.0	39	236. 1	37. 4	99	295.3	46.8
60	59.3	9.4	20	118.5	18.8	80	177.8	28.2	40	237.0	37.5	300	296.3	46.9
		·		- D.								D2:st	D.:-	T.c.
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
I .														

81° (99°, 261°, 279°).

Difference of Latitude and Departure for 9° (171°, 189°, 351°).

			Diner	ence or	- Tatitud	- and	Depart		0 (1	, 100	, 001	,. 			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	
301 02	297. 3 298. 3 299. 3	47. 1 47. 2	361 62 63	356. 6 357. 5 358. 5	56. 5 56. 7 56. 8	421 22 23	415. 8 416. 8 417. 8	65. 9 66. 0 66. 2	481 82 83	475. 1 476. 1 477. 1	75. 2 75. 3 75. 5	541 42 43	534. 4 535. 4 536. 3	84. 6 84. 7 84. 9	
03 04	300.3	47. 4 47. 6	64	359.5	56.9	24	418.8	66.3	84	478.0	75.6	44	537.3	85.1	
05 06	$301.2 \\ 302.2$	47.7 47.9	65 66	360. 5 361. 5	57. 1 57. 3	25 26	419.8 420.8	66. 5 66. 6	85 86	479. 0 480. 0	75.8 75.9	45 46	538.3 539.3	85. 3 85. 4	
07	303. 2	48.0	67	362.5	57.4	27	421.7	66.8	87	481.0	76.1	47	540.3	85.6	
08 09	304. 2 305. 2	48. 2 48. 3	68 69	$363.5 \\ 364.5$	57.6 57.7	28 29	422.7 423.7	67. 0 67. 1	88 89	482. 0 483. 0	$76.2 \\ 76.4$	48 49	541.3 542.3	85. 7 85. 9	
10	306. 2	48.5	70	365. 4	57.9	30	424. 7	67.3	90	484.0	76.5	50	543.3	86.0	
311	307. 2	48.7	371	366. 4 367. 4	58. 1 58. 2	431 32	425. 7 426. 7	67. 4 67. 6	491 92	485. 0 485. 9	76. 7 76. 8	$551 \\ 52$	544.3 545.2	86. 2 86. 3	
12 13	308. 2 309. 1	48. 8 49. 0	72 73	368. 4	58.4	33	427.7	67.7	93	486.9	77.0	53	546.2	86.5	
14	310.1	49.1	74	369.4	58.5	34	428.7 429.6	67. 9 68. 1	94 95	487. 9 488. 9	77.1 77.3	54 55	$547.2 \\ 548.2$	86.6 86.8	
15 16	311. 1 312. 1	49. 3 49. 4	75 76	$370.4 \\ 371.4$	58. 7 58. 8	35	430.6	68. 2	96	489. 9	77.5	56	549.2	87.0	
17	313. 1	49.6	77	372.4	59.0	37	431.6	68.4	97	490.9	77.7	57	550. 2	87.1	
18 19	314. 1 315. 1	49.8 49.9	78 79	$373.3 \\ 374.3$	59. 1 59. 3	38 39	432. 6 433. 6	68. 5 68. 7	98 99	491. 9 492. 9	77. 9 78. 0	58 59	551. 2 552. 2	87.3 87.4	
20	316. 1	50.1	80	375.3	59.5	40	434.6	68.8	500	493.8	78. 2	60	553.1	87.6	
$\begin{array}{c} 321 \\ 22 \end{array}$	317. 0 318. 0	50. 2 50. 4	381 82	376.3 377.3	59.6 59.8	441 42	435. 6 436. 6	69. 0 69. 1	501 02	494. 8 495. 8	78. 4 78. 5	$\begin{array}{c} 561 \\ 62 \end{array}$	554. 1 555. 1	87. 7 87. 9	
23	319.0	50.5	83	378.3	59.9	43	437.5	69.3	03	496.8	78.7	63	556.1	88.0	
24	23 319.0 50.5 83 378.3 59.9 43 437.5 69.3 03 496.8 78.7 63 556.1 88.0 24 320.0 50.7 84 379.3 60.1 44 438.5 69.5 04 497.8 78.8 64 557.1 88.2 25 321.0 50.8 85 380.3 60.2 45 439.5 69.6 05 498.8 79.0 65 558.1 88.3														
26	322.0	51.0	86	381.2	60.4	46	440.5	69.8	06	499.8	79.1	66	559.1	88.5	
27 28	323. 0 324. 0	$51.2 \\ 51.3$	87 88	$382.2 \\ 383.2$	$60.5 \\ 60.7$	48	$441.5 \\ 442.5$	69. 9 70. 1	07 08	500. 8 501. 7	79. 2 79. 4	67 68	560. 1 561. 0	88.6 88.8	
29	324. 9	51.5	89	384.2	60.9	49	443.5	70.2	09	502.7	79.5	69	562.0	88.9	
30	325.9	51.7	90	385.2	61.0	50	444.5	70.4	$\frac{10}{511}$	$\frac{503.7}{504.7}$	$\frac{79.7}{79.8}$	$\frac{70}{571}$	$\frac{563.0}{564.0}$	$\frac{89.1}{89.2}$	
$\begin{array}{c} 331 \\ 32 \end{array}$	$326.9 \\ 327.9$	51.8 51.9	391 92	386. 2 387. 2	61. 2 61. 3	$\begin{array}{c} 451 \\ 52 \end{array}$	445. 4 446. 4	70. 6 70. 7	$\frac{511}{12}$	504. 7	80.1	72	565. 0	89.4	
33	328.9	52.1	93	388.2	61.5	53	447.4	70.9	13	506. 7	80.2	73	566.0	89.5	
34 35	329. 9 330. 9	52. 3 52. 4	94 95	389. 1 390. 1	61. 6 61. 8	54 55	448. 4 449. 4	71.0	14 15	507. 7 508. 7	80. 3 80. 5	74 75	567. 0 568. 0	89. 7 89. 9	
36	331.9	52.6	96	391. 1	62.0	56	450.4	71.3	16	509.6	80.6	76	568.9	90.1	
37 38	332. 8 333. 8	52. 7 52. 9	97 98	392.1 393.1	$62.1 \\ 62.3$	57 58	451. 4 452. 4	71.5 71.7	17 18	510.6 511.6	80.8	77 78	569. 9 570. 9	90. 2 90. 3	
39	334.8	53.0	99	394.1	62.4	59	453.3	71.8	19	512.6	81.1	79	571.9	90.5	
$\frac{40}{341}$	$\frac{335.8}{336.8}$	$\frac{53.2}{53.3}$	400	$\frac{395.1}{396.1}$	$\frac{62.6}{62.7}$	60 461	454. 3 455. 3	$\frac{72.0}{72.1}$	$\frac{20}{521}$	513.6 514.6	81.3	80 581	572.9 573.9	90.7	
42	337.8	53.5	02	397.0	62.9	62	456.3	72.3	22	515.6	81.6	82	574.9	91.0	
43 44	338.8	53. 7 53. 8	03 04	398. 0 399. 0	63. 0 63. 2	63 64	457.3 458.3	72. 4 72. 6	23 24	516. 6 517. 6	81.8	83 84	575. 9 576. 9	91. 2 91. 3	
45	340.8	54.0	05	400.0	63.4	65	459.3	72.7	25	518.6	82.1	85	577.9	91.5	
46 47	341.7 342.7	54. 1 54. 3	06 07	401. 0 402. 0	63.5 63.7	66 67	460.3 461.2	72. 9 73. 1	26 27	519.5 520.5	82. 3 82. 4	86 87	578.8 579.8	91. 7 91. 8	
48	343.7	54. 4	08	403.0	63.8	68	462.2	73.2	28	521.5	82.6	88	580.8	92.0	
49 50	344. 7 345. 7	54. 6 54. 8	09 10	404. 0 405. 0	64. 0 64. 1	69 70	463. 2 464. 2	73. 4 73. 5	29 30	522.5 523.5	82. 7 82. 9	89 90	581. 8 582. 8	92. 1 92. 2	
351	346.7	54.9	411	405.9	64.3	471	465. 2	73.7	531	524.5	83. 1	591	583.8	92.4	
52 53	347. 7 348. 7	55. 1 55. 2	$\frac{12}{13}$	406. 9 407. 9	64. 5 64. 6	$\begin{array}{c} 72 \\ 73 \end{array}$	466. 2 467. 2	73.8 74.0	32 33	525. 5 526. 5	83. 2 83. 4	92 93	584. 8 585. 7	92.5 92.7	
54	349.6	55.4	14	408.9	64.8	74	468. 2	74.2	34	527.5	83.5	94	586.7	92.9	
55 56	350.6 351.6	55. 5 55. 7	15 16	409. 9 410. 9	64.9 65.1	75 76	469. 2 470. 1	74. 3 74. 5	35 36	528. 4 529. 4	83. 7 83. 8	95 96	587. 7 588. 7	93. 1 93. 2	
57	352.6	55.9	17	411.9	65. 2	77	471.1	74.6	37	530.4	84.0	97	589.7	93. 4	
58	353.6	56.0	18	412.9 413.8	65.4	78	472.1	74.8	38	531.4	84.1	98	590.7	93.5	
59 60	354.6 355.6	56. 2 56. 3	19 20	413.8	65. 6 65. 7	79 80	473.1 474.1	74. 9 75. 0	39 40	532. 4 533. 4	84. 3	99 600	591. 7 592. 6	93. 7 93. 8	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	
						81° (99°, 261	°, 279°).						

TABLE 2.

Difference of Latitude and Departure for 10° (170° , 190° , 350°).

			Dinere	ence of 1	Lanua	e and	Departi	ire for	10 (1	70 , 190	, 300).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.2	61	60.1	10.6	121	119. 2	21.0	181	178.3	31.4	241	237.3	41.8
2	2.0	0.3	62	61.1	10.8	22	120.1	21.2	82	179.2	31.6	42	238.3	42.0
3	3.0	0.5	63	62.0	10.9	23	121.1	21.4	83	180.2	31.8	43	239.3	42.2
4	3.9	0.7	64	63.0	11.1	24	122.1	21.5	84	181.2	32.0	44	240.3	42.4
5	4.9	0.9	65	64.0	11.3 11.5	25	123.1	21.7	85	182. 2 183. 2	32. 1 32. 3	45	241.3	42.5
$\frac{6}{7}$	5.9 6.9	1.0 1.2	66 67	65. 0 66. 0	11.6	$\frac{26}{27}$	124.1 125.1	21. 9 22. 1	86 87	184.2	32.5	46 47	242.3 243.2	42.7
8	7.9	1.4	68	67.0	11.8	28	126.1	22. 2	88	185.1	32.6	48	244. 2	42.9 43.1
9	8.9	1.6	69	68.0	12.0	29	127.0	22.4	89	186.1	32.8	49	245.2	43.2
10	9.8	1.7	70	68. 9	12.2	30	128.0	22.6	90	187.1	33.0	50	246.2	43.4
11	10.8	1.9	71	69.9	12.3	131	129.0	22.7	191	188.1	33. 2	251	247. 2	43.6
12	11 8	2.1	72	70.9	$12.5 \\ 12.7$	32	130.0	22.9	92	189. 1 190. 1	33.3	52	248.2	43. 8 43. 9
13	12.8	2.3	73	71.9	12.7	33	131.0	23.1	93	190.1	33.5	53	249.2	43.9
14 15	13. 8 14. 8	$2.4 \\ 2.6$	74 75	72. 9 73. 9	12.8 13.0	34 35	132. 0 132. 9	23. 3 23. 4	94 95	102.0	33. 7 33. 9	54 55	250. 1 251. 1	44.1 44.3
16	15.8	2.8	76	74.8	13. 2	36	133. 9	23. 6	96	191. 1 192. 0 193. 0	34.0	56	252.1	44.5
17	16.7	3.0	77	75.8	13.4	37	134.9	23.8	97	194.0	34.2	57	253.1	44.6
18	17.7	3.1	78	76.8	13.5	38	135.9	24.0	98	195.0	34.4	58	254.1	44.6 44.8
19	18.7	3.3	79	77.8	13.7	39	136.9	24.1	99	196.0	34.6	59	255.1	i 45. ()
_20	19.7	3.5	80	78.8	13.9	40	137.9	24.3	200	197.0	34.7	60	256.1	45.1
21	20. 7	3, 6	81	79.8	14.1	141	138.9	24.5	201	197.9	34.9	261	257.0	45.3
22 23	21.7 22.7	3.8	82	80.8	14.2	42	139.8	24.7	02	198.9	35.1	62	258. 0 259. 0	45.5
$\frac{23}{24}$	23.6	$\frac{4.0}{4.2}$	83 84	81. 7 82. 7	14. 4 14. 6	43 44	140.8	24.8 25.0	$03 \\ 04$	199. 9 200. 9 201. 9	35. 3 35. 4	$\frac{63}{64}$	260.0	45. 7 45. 8
25	24.6	4.3	85	83.7	14.8	45	142.8	25. 2	05	201.9	35.6	65	261.0	46.0
26	25. 6	4.5	86	84.7	14.9	46	143.8	25.4	06	202.9	35.8	66	262. 0	46. 0 46. 2
27	26.6	4.7	87	85.7	15.1	47	144.8	25.5	07	202. 9 203. 9	35.9	67	262.9	46.4
28	27.6	4.9	88	86.7	15.3	48	145.8	25. 7	08	204.8	36.1	68	263.9	46.5
29	28.6	5.0	89	87.6	15.5	49	146. 7	25.9	09	205.8	36.3	69	264. 9	46.7
30	$\frac{29.5}{20.5}$	5.2	90	88.6	15.6	50	147.7	26.0	10	206.8	36.5	70	265.9	46. 9
31 32	$30.5 \\ 31.5$	5.4	$\frac{91}{92}$	89. 6 90. 6	15. 8 16. 0	151	148.7	26. 2	211	207.8	36.6	271	266. 9 267. 9	47. 1 47. 2
33	32.5	5. 6 5. 7	93	91.6	16.1	52 53	149. 7 150. 7	26. 4 26. 6	12 13	208.8 209.8	36. 8 37. 0	72 73	268.9	47.4
34	33. 5	5.9	94	92.6	16.3	54	151.7	26.7	14	210.7	37. 2	74	269.8	47.6
35	34.5	6. 1	95	93.6	16.5	55	152.6	26.9	15	211.7	37.3	75	270.8	47.8
36	35. 5	6.3	96	94.5	16.7	56	153.6	27.1	16	212.7	37.5	76	271.8	47.9
37	36.4	6.4	97	95.5	16.8	57	154.6	27.3	17	213.7	37.7	77	272.8	48.1
38 39	37.4	6.6	98	$96.5 \\ 97.5$	$17.0 \\ 17.2$	$\begin{array}{c} 58 \\ 59 \end{array}$	155.6	27.4	18	214. 7 215. 7	37.9	78 79	273.8	48. 3 48. 4
40	38. 4 39. 4	6.8 6.9	100	98.5	17.4	60	156. 6 157. 6	$\begin{bmatrix} 27.6 \\ 27.8 \end{bmatrix}$	19 20	216. 7	38. 0 38. 2	80	274. 8 275. 7	48.6
41	40.4	$\frac{0.5}{7.1}$	101	$\frac{99.5}{}$	17.5	161	158.6	28.0	$\frac{20}{221}$	217.6	38.4	281	$\frac{276.7}{276.7}$	48.8
42	41.4	7. 3	02	100.5	17.7	62	159.5	28. 1	22	218.6	38.5	82	277.7	49.0
43	42.3	7.5	03	101.4	17.9	63	160.5	28.3	23	219.6	38.7	83	278.7	49.1
44	43.3	7.6	04	102.4	18.1	64	161.5	28.5	24	218.6 219.6 220.6	38.9	84	279.7	49.3
45	44.3	7.8	05	103.4	18.2	65	162.5	28.7	25	221.6	39.1	85	280.7	49.5
46 47	45. 3 46. 3	8. 0 8. 2	06 07	104. 4 105. 4	18. 4 18. 6	66 67	163. 5 164. 5	28. 8 29. 0	$\frac{26}{27}$	222. 6 223. 6	39. 2 39. 4	86 87	281. 7 282. 6	49.7
48	40.3	8. 2	07	106.4	18.8	68	165. 4	29.0	28	223. 6	39. 4	88	283.6	50.0
49	48.3	8.5	09	107. 3	18.9	69	166. 4	29.3	29	225.5	39.8	89	284.6	50. 0 50. 2
50	49. 2	8.7	10	108.3	19.1	70	167.4	29.5	30	226.5	39.9	90	285.6	50.4
51	50.2	8.9	111	109.3	19.3	171	168. 4	29.7	231	227.5	40.1	291	286.6	50.5
52	51.2	9.0		110.3	19.4	72	169.4	29.9	32	228.5	40.3	92		50.7
53	52. 2	9.2	13	111.3	19.6	73	170.4	30.0	33	229.5	40.5	93	288.5	50.9
54 55	53. 2 54. 2	$9.4 \\ 9.6$	14 15	112.3 113.3	19. 8 20. 0	74 75	$171.4 \\ 172.3$	30. 2	34	230.4 231.4	40.6	94	$289.5 \\ 290.5$	51. 1 51. 2
56	55.1	9. 6	$\begin{array}{c} 15 \\ 16 \end{array}$	113.3	20.0	76	173.3	30. 4	35 36	231. 4	41.0	95 96	290.5	51. 2
57	56.1	9.9	17	115.2	20.3	77	174.3	30.7	37	233. 4	41.2	97	292.5	51.6
58	57.1	10. 1	18	116.2	20.5	78	175.3	30.9	38	234.4	41.3	98	293. 5	51.7
59	58.1	10.2	19	117.2	20.7	79	176.3	31.1	39	235.4	41.5	99	294.5	51.9
60	59.1	10.4	20	118, 2	20.8	80	177.3	31.3	40	236.4	41.7	300	295. 4	52.1
Dist	D	Y	Dist	- D.	T	n:		7			Y	- Dt. 1	- D.	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						30° (1	00°, 260	°, 280°).					

80° (100°, 260°, 280°).

TABLE 2.

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Difference of Latitude and Departure for 10° (170°, 190°, 350°)

			ыщег	ence or	Lautuc	ie and	Depart	ure for	το. (110-, 19	o , 500)		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	296.4	52.3	361	355.5	62. 7	421	414.6	73. 1	481	473.7	83.5	541	532.8	93.9
02	297.4	52.5	62	356.5	62. 9	22	415.6	73.3	82	474.7	83.7	42	533.8	94.1
03	298.4	52.6	63	357.5	63.0	23	416.6	73.5	83	475.7	83.9	43	534.8	94.3
04	299. 4	52.8	64	358.5	63. 2	24	417.6	73.6	84	476.6	84.1	44	535.7	94.5
05 06	300. 4	53.0	65 66	359. 5 360. 4	63.4	25 26	418.5	73.8	85 86	477.6 478.6	84. 2	45 46	536.7	94. 6 94. 8
07	302.3	53. 3	67	361. 4	63.7	27	420.5	74. 2	87	479.6	84.6	47	538.7	95.0
08	303.3	53.5	68	362. 4	63. 9	28	421.5	74. 3	88	480.6	84.7	48	539.7	95.1
09	304.3	53.7	69	363. 4	64.1	29	422.5	74.5	89	481.6	84.9	49	540.7	95.3
10	305.3	53.8	70	364.4	64.3	30	423.5	74.7	90	482.6	85.1	50	541.6	95.5
311	306. 3	54.0	371	365.4	64.4	431	424.5	74.9	491	483.5	85.2	551	542.6	95.6
12 13	307.3 308.2	54. 2 54. 3	72 73	366. 4 367. 3	64.6 64.8	$\frac{32}{33}$	425. 4 426. 4	$\begin{vmatrix} 75.0 \\ 75.2 \end{vmatrix}$	92 93	484.5 485.5	85. 4 85. 6	52 53	543. 6 544. 6	95. 8 96. 0
14	309.2	54.5	74	368.3	65.0	34	427.4	75. 4	94	486.5	85.8	54	545.6	96. 2
15	310. 2	54.7	75	369.3	65.1	35	428.4	75.5	95	487.5	85.9	55	546.6	96.3
16	311. 2	54.9	76	370.3	65.3	36	429.4	75.7	96	488.5	86.1	56	547.5	96.5
17	312.2	55.1	77	371.3	65.5	37	430.4	75.9	97	489.4	86.3	57	548.5	96.7
18	313. 2	55. 2	78	372.3	65.6	38	431.3	76.1	98	490.4	86.5	58	549.5	96.9
19	314.2	55.4	79	373.2	65.8	39	432.3	76.2	99	491.4	86.6	59	550.5	97.0
20	315.1	55.6	80	374.2	66.0	40	433.3	76.4	500	492.4	86.8	60	551.5	97. 2
321	316.1	55.8	381	375. 2	66.2	441	434.3	76.6	501	493.4	87.0	561	552.5	97.4
22 23	317. 1 318. 1	55. 9 56. 1	82 83	376.2 377.2	66.3 66.5	42 43	435.3 436.3	76.8 76.9	$02 \\ 03$	494. 4 495. 3	87. 2 87. 3	$\frac{62}{63}$	553.5 554.4	97.6
24	319.1	56.3	84	378. 2	66.7	44	437.3	77.1	04	496.3	87.5	64	555.4	97.9
25	320. 1	56.4	85	379.2	66. 9	45	438. 2	77.3	05	497.3	87.7	65	556.4	98.1
26	321.0	56.6	86	380.1	67.0	46	439. 2	77.5	06	498.3	87.9	66	557.4	98.3
27	322.0	56.8	87	381.1	67.2	47	440.2	77.6	07	499.3	88.0	67	558.4	98.4
28	323.0	57.0	88	382.1	67.4	48	441.2	77.8	08	500.3	88.2	68	559.4	98.6
29	324.0	57.1	89	383.1	67.6	49	442.2	78.0	09	501.3	88.4	69	560.3	98.8
30	325.0	57.3	90	384.1	67.7	50	443.2	78.2	10	502.2	88.6	70	561.3	99.0
$\begin{array}{c} 331 \\ 32 \end{array}$	$326.0 \\ 327.0$	57.5 57.7	$\frac{391}{92}$	385. 1 386. 0	67. 9 68. 1	$\frac{451}{52}$	444. 2 445. 1	78.3 78.5	$\frac{511}{12}$	503. 2 504. 2	88. 7 88. 9	571	562. 3 563. 3	99.1
33	327.0 327.9	57.8	93	387. 0	68. 2	53	446. 1	78.7	13	505. 2	89.1	72 73	564.3	99.3 99.5
34	328.9	58.0	94	388.0	68.4	54	447. 1	78.8	14	506. 2	89. 2	74	565.3	99.6
35	329.9	58.2	95	389.0	68.6	55	448.1	79.0	15	507.2	89.4	75	566.3	99.8 100.0
36	330.9	58.4	96	390.0	68.8	56	449.1	79.2	16	508.2	89.6	76	567.2	100.0
37	331.9	58.5	97	391.0	68. 9	57	450.1	79.4	17	509.1	89.8	77	568.2	100.2
38	332.9	58.7 58.9	98.	392. 0 392. 9	69. 1 69. 3	58	451.0	79.5	18	510.1	89.9	78	569. 2	100.3
39	333. 9 334. 8	59.1	99 400	393. 9	69.5	59 60	452. 0 453. 0	79. 7	19 20	511. 1 512. 1	90.1	79 80	570. 2 571. 2	100.5
341	335.8	59.2	401	394. 9	69.6	461	454.0	80.1	521	513. 1	90.5	581	572.2	100.9
42	336.8	59.4	02	395. 9	69.8	62	455. 0	80. 2	22	514.1	90.6	82	573. 2	101.0
43	337.8	59.6	03	396.9	70.0	63	456.0	80.4	23	515. 1	90.8	83	574.1	101.2
44	338.8	59.8	04	397. 9	70.2	64	457.0	80.6	24	516.0	91.0	84	575.1	101.4
45	339.8	59.9	05	398.9	70.3	65	457.9	80.8	25	517.0	91.2	85	576.1	101.6
46	340.7	60.1	06	399.8	70.5	66 67	458. 9	80.9	26	518.0	91.3	86	577.1	101.7
47 48	$341.7 \\ 342.7$	60.3 60.4	07 08	400.8 401.8	70. 7 70. 9	67 68	459. 9 460. 9	$\begin{vmatrix} 81.1 \\ 81.3 \end{vmatrix}$	27 28	519. 0 520. 0	$91.5 \\ 91.7$	87 88	578. 1 579. 1	101. 9 102. 1
49	343.7	60.6	09	402.8	71.0	69	461.9	81.5	29	521.0	91.7	89	580.0	102.1
50	344.7	60.8	10	403.8	71. 2	70	462.9	81.6	30	521.9	92.0	90	581.0	102.3
351	345.7	61.0	411	404.8	71.4	471	463.8	81.8	531	522.9	92. 2	591	582.0	102.6
52	346.7	61.1	12	405.7	71.6	72	464.8	82.0	32	523.9	92.4	92	583.0	102.8
53	347.6	61.3	13	406.7	71.7	73	465.8	82.1	33	524.9	92.5	93	584.0	102. 9
54	348.6	61.5	14	407.7	71.9	74	466.8	82.3	34	525.9	92.7	94	585.0	103.1
55 56	349. 6 350. 6	61.7 61.8	15 16	408.7 409.7	$72.1 \\ 72.2$	75 76	467. 8 468. 8	$ \begin{array}{c c} 82.5 \\ 82.7 \end{array} $	35 36	526.9 527.9	$92.9 \\ 93.1$	95 96	586. 0 586. 9	103. 3 103. 5
57	351.6	62.0	17	410.7	72.4	77	469.8	82. 8	37	528.8	93. 2	97	587. 9	103. 6
58	352.6	62. 2	18	411.7	72.6	78	470.7	83.0	38	529.8	93. 4	98	588. 9	103. 8
59	353.5	62.4	19	412.6	72.8	79	471.7	83. 2	39	530.8	93.6	99	589.9	104.0
60	354.5	62.5	20	413.6	72.9	80	472.7	83.4	40	531.8	93.8	600	590.9	104.2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Den	Tet	Ďist.	- Do-	T.c.4	Di-4	Den	
Dist.	Dep.	nat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

80° (100°, 260°, 280°).

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TABLE 2. Difference of Latitude and Departure for 11° (169°, 191°, 349°).

Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.2	61	59.9	11.6	121	118.8	23.1	181	177.7	34. 5	241	236. 6	46.0
	2.0	0.4	62	60.9	11.8	22	119.8	23.3	82	178.7	34.7	42	237.6	46.2
$\begin{array}{c} 2 \\ 3 \\ 4 \end{array}$	2 9	0.6	63	61.8	12.0	23	120.7	23.5	83	179.6	34.9	43	238.5	46.4
5	3. 9 4. 9	0.8	64 65	62. 8 63. 8	12. 2 12. 4	$\begin{array}{c} 24 \\ 25 \end{array}$	121.7 122.7	23. 7 23. 9	84 85	180. 6 181. 6	35.1	44 45	239.5 240.5	46.6 46.7
6	5. 9	1.1	66	64.8	12.6	26	123.7	24.0	86	182.6	35.5	46	241.5	46.9
7	6. 9	1.3	67	65.8	12.8	27	124.7	24.2	87	183.6	35.7	47	242.5	47.1
8 9	7.9	1.5	68 69	66. 8 67. 7	13. 0 13. 2	28 29	125.6 126.6	24.4	88 89	184. 5 185. 5	35.9	48	243.4	47.3
10	8.8 9.8	$\begin{array}{c c} 1.7 \\ 1.9 \end{array}$	70	68.7	13. 4	30	127.6	24.8	90	186.5	36.1	49 50	244. 4 245. 4	47.5 47.7
11	10.8	2.1	71	69.7	13.5	131	128.6	25.0	191	187.5	36. 4	251	246.4	47.9
12	11.8	2.3	72	70.7	13.7	32	129.6	25. 2	92	188.5	36.6	52	247.4	48.1
13 14	12.8 13.7	$\begin{array}{c c} 2.5 \\ 2.7 \end{array}$	73 74	71.7 72.6	13. 9 14. 1	$\begin{array}{c} 33 \\ 34 \end{array}$	130.6 131.5	25. 4 25. 6	93 94	189. 5 190. 4	36. 8 37. 0	53 54	248. 4 249. 3	48.3
15	14.7	2. 9	75	73.6	14. 3	35	132. 5	25.8	95	190.4	37. 2	55	250.3	48.5 48.7
16	15.7	3.1	76	74.6	14.5	36	133.5	26.0	96	192. 4	37.4	56	251.3	48.8
17	16. 7	3.2	77	75.6	14.7	37	134.5	26.1	97	193. 4	37.6	57	252.3	49.0
18 19	17. 7 18. 7	3. 4 3. 6	78 79	76.6 77.5	14.9 15.1	38 39	135. 5 136. 4	26. 3 26. 5	98 99	194. 4 195. 3	37.8 38.0	58 59	253.3 254.2	49. 2 49. 4
20	19.6	3.8	80	78.5	15.3	40	137.4	26.7	200	196.3	38. 2	60	255.2	49.6
21	20.6	4.0	81	79.5	15.5	141	138.4	26. 9	201	197.3	38.4	261	256.2	49.8
22	21.6	4.2	82	80.5	15.6	42	139.4	27.1	02	198.3	38.5	62	257.2	50.0
23 24	22. 6 23. 6	4.4 4.6	83 84	$81.5 \\ 82.5$	15.8 16.0	43 44	140. 4 141 4	$27.3 \\ 27.5$	03 04	199.3 200.3	38. 7 38. 9	63 64	258. 2 259. 1	50. 2 50. 4
25	24.5	4.8	85	83. 4	16. 2	45	142.3	27.7	05	201.2	39.1	65	260.1	50. 6
26	25.5	5.0	86	84.4	16.4	46	143.3	27.9	06	202. 2	39.3	66	261.1	50.8
27	26.5	5. 2	87	85.4	16.6	47	144.3	28. 0 28. 2	07	203. 2	39.5	67	262.1	50.9
28 29	$\begin{array}{c c} 27.5 \\ 28.5 \end{array}$	5. 3 5. 5	88 89	86. 4 87. 4	$ \begin{array}{c c} 16.8 \\ 17.0 \end{array} $	48 49	145. 3 146. 3	28. 2	08 09	204. 2 205. 2	39. 7 39. 9	68 69	263. 1 264. 1	$51.1 \\ 51.3$
30	29. 4	5.7	90	88.3	17. 2	50	147.2	28.6	10	206.1	40.1	70	265.0	51.5
31	30. 4	5.9	91	89.3	17.4	151	148.2	28.8	211	207.1	40.3	271	266.0	51.7
32	31, 4 32, 4	6.1	92	90.3	17.6	52	149.2	29.0	12	208.1	40.5	$\begin{array}{c} 72 \\ 73 \end{array}$	267.0	51.9
33 34	33. 4	6.3 6.5	93 94	91.3 92.3	17.7 17.9	53 54	150. 2 151. 2	29. 2 29. 4	13 14	209. 1 210. 1	40.6	74	268. 0 269. 0	52. 1 52. 3
35	34.4	6.7	95	93. 3	18.1	55	152. 2	29.6	15	211.0	41.0	75	269.9	52.5
36	35.3	6.9	96	94.2	18.3	56	153. 1	29.8	16	212.0	41.2	76	270.9	52.7
37 38	36. 3 37. 3	7.1 7.3	97 98	$95.2 \\ 96.2$	18.5 18.7	57 58	154. 1 155. 1	30.0 30.1	17 18	213. 0 214. 0	41.4	77 78	271. 9 272. 9	52.9 53.0
39	38.3	7.4	99	97. 2	18.9	59	156. 1	30.3	19	215.0	41.8	79	273.9	53.2
40	39.3	7.6	100	98.2	19.1	60	157.1	30.5	20	216.0	42.0	80	274.9	53.4
41 42	40. 2 41. 2	7. 8 8. 0	101 02	99.1	19.3	161	158. 0 159. 0	30. 7 30. 9	221 22	216. 9 217. 9	42. 2 42. 4	281 82	275. 8 276. 8	53.6 53.8
43	42. 2	8.2	03	100. 1 101. 1	19.5 19.7	62 63	160.0	31.1	23	218.9	42. 6	83	277.8	54.0
44	43. 2	8.4	04	102.1	19.8	64	161.0	31.3	24	219.9	42.7	84	278.8	54.2
45	44.2	8.6	05	103.1	20.0	65	162.0	31.5	25	220. 9	42.9	85	279.8	54.4
46 47	45. 2 46. 1	8.8 9.0	06 07	104.1 105.0	20. 2 20. 4	66 67	163. 0 163. 9	$31.7 \\ 31.9$	26 27	221.8 222.8	43.1 43.3	86 87	280. 7 281. 7	54.6 54.8
48	47.1	9. 2	08	106.0	20.6	68	164.9	32.1	28	223.8	43.5	88	282.7	55.0
49	48.1	9.3	09	107.0	20.8	69	165.9	32.2	29	224.8	43.7	89	283. 7	55.1
$\frac{50}{51}$	49. 1 50. 1	$\frac{9.5}{9.7}$	10	108.0	21.0	70	166.9	32.4	30	225.8	43.9	90	284.7	55.3
52	51.0	9.7 9.9	111 12	109. 0 109. 9	21. 2 21. 4	171 72	167. 9 168. 8	32. 6	231 32	226. 8 227. 7	44.1 44.3	291 92	285.7 286 6	55. 5 55. 7
53	52.0	10.1	13	110.9	21.6	73	169.8	33.0	33	228.7	44.5	93	287.6	55.9
54	53.0	10.3	14	111.9	21.8	74	170.8	33. 2	34	229.7	44.6	94	288.6	56.1
55 56	54. 0 55. 0	10.5 10.7	15 16	112.9 113.9	21.9 22.1	75 76	$171.8 \\ 172.8$	33. 4 33. 6	35 36	230. 7 231. 7	44.8 45.0	95 96	289. 6 290. 6	56.3 56.5
57	56.0	10. 9	17	114.9	22.3	77	173.7	33.8	37	232. 6	45. 2	97	291.5	56.7
58	56.9	11.1	18	115.8	22.5	78	174.7	34.0	38	233.6	45.4	98	292.5	56.9
59 60	57. 9 58. 9	11.3 11.4	19 20	116.8	$22.7 \\ 22.9$	79 80	175. 7 176. 7	34. 2 34. 3	39 40	234.6 235.6	45.6 45.8	99 300	293.5 294.5	$57.1 \\ 57.2$
- 00	00. 0	11.4	20	117.8	22. 9	30	110.7	01.0	-10	200.0	10.0	500	201.0	01.2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
					7	79° (10	01°, 259	°, 281°).					

TABLE 2.

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Difference of Latitude and Departure for 11° (169°, 191°, 349°).

			Dinere	ence or 1	Lantud	e and	рераги	ire for	11 (1	.09 , 191	, 349)•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	295.4	57.4	361	354.3	68.9	421	413. 2	80.3	481	472.1	91.8	541	531.0	103. 2
02	296.4	57.6	62	355. 3	69.1	22	414.2	80.5	82	473.1	92.0	42	532.0	103.4
03	297.4	57.8	63	356.3	69.3	23	415. 2	80.7	83	474.1	92.2	43	533.0	103.6
04	298.4	58.0	64	357.3	69.5	24	416.2	80.9	84	475.1	92.4	44	534.0	103.8
05	299.4	58.2	65	358.3	69.6	25	417. 2	81.1	85	476.1	92.6	45	535.0	104.0
06	300.3	58.4	66	359.2	69.8	26	418.1	81.3	86	477.0	92.8	46	535.9	104.2
07	301.3	58.6	67	360. 2 361. 2	70.0 70.2	$\frac{27}{28}$	419. 1 420. 1	81. 5 81. 7	87 88	478.0 479.0	93. 0 93. 2	47 48	536. 9 537. 9	104. 4 104. 6
08 09	302.3	58.8 59.0	68 69	362. 2	70. 4	$\frac{20}{29}$	420.1	81. 9	89	480.0	93. 3	49	538.9	104.8
10	304.3	59. 2	70	363. 2	70.6	30	422.1	82. 1	90	481.0	93.5	50	539.9	105.0
311	305.3	59.3	371	364.1	70.8	431	423.0	82. 2	491	481.9	93.6	551	540.8	105.1
12	306. 2	59.5	$7\hat{2}$	365. 1	71.0	32	424.0	82.4	92	482.9	93.8	52	541.8	105. 3
13	307.2	59.7	73	366.1	71.2	33	425.0	82.6	93	483.9	94.0	53	542.8	105. 5 105. 7
14	308.2	59.9	74	367.1	71.4	34	426.0	82.8	94	484.9	94. 2	54	543.8	105.7
15	309. 2	60.1	75	368.1	71.6	35	427.0	83.0	95	485.9	94.4	55	544.8	105.9
16	310.2	60. 3	76	369.1	71.7	36	428.0	83.2	96	486.9	94.6	56	545.8	106.1
17	311.1	60.5	77	370. 0 371. 0	$71.9 \\ 72.1$	37 38	428. 9 429. 9	83.4	97 98	487.8	94.8 95.0	57 58	546. 7 547. 7	106. 3 106. 5
18 19	312. 1 313. 1	60. 7 60. 9	78 79	372.0	72. 3	39	430.9	83. 6 83. 8	99	488. 8 489. 8	95. 2	59	548.7	106. 5
20	314.1	61.1	80	373.0	72.5	40	430.9	84.0	500	490.8	95. 4	60	549.7	106.7
321	315.1	61.3	381	374.0	$\frac{72.5}{72.7}$	441	432.9	84. 1	501	491.8	95.6	561	550.7	107.1
22	316. 1	61.4	82	374.9	72.9	42	433.8	84.3	02	492. 7	95.8	62	551.6	107.2
23	317.0	61.6	83	375.9	73. 1	43	434.8	84.5	03	493.7	96.0	63	552.6	107.4
24	318.0	61.8	84	376.9	73. 3 73. 5	44	435.8	84.7	04	494.7	96. 2	64	553.6	107. 6 107. 8
25	319.0	62.0	85	377.9	73.5	45	436.8	84.9	05	495.7	96.4	65	554.6	107.8
26	320.0	62. 2	86	378.9	73.7	46	437.8	85.1	06	496. 7	96.6	66	555.6	108.0
27	321.0	62.4	87	379.9	73.8	47 48	438.8	85.3	07 08	497.7	96.8		556.6	108.2
28 29	$321.9 \\ 322.9$	62. 6 62. 8	88 89	380. 8 381. 8	$74.0 \\ 74.2$	48	439. 7 440. 7	85. 5 85. 7	08	498. 6 499. 6	97.0 97.2	68 69	557. 6 558. 6	108. 2 108. 4 108. 6
30	323. 9	63.0	90	382.8	74. 4	50	441.7	85. 9	10	500.6	97.3	70	559.5	108.8
331	324.9	63. 2	391	383.8	74.6	451	442.7	86. 1	511	501.6	97.5	571	560.5	109.0
32	325.9	63.4	92	384.8	74.8	52	443.7	86. 2	12	502.6	97.6	72	561.5	109.1
33	326.8	63.5	93	385.7	75.0	53	444.6	86.4	13	503.5	97.8	73	562.5	109.3 109.5
34	327.8	63.7	94	386.7	75. 2	54	445.6	86.6	14	504. 5	98.0	74	563.5	109.5
35	328.8	63.9	95	387.7	75.4	55	446.6	86.8	15	505.5	98.2	75	564.5	109. 7 109. 9 110. 1
36 37	329. 8 330. 8	$64.1 \\ 64.3$	96 97	388. 7 389. 7	75.6 75.8	56 57	447.6 448.6	$\begin{vmatrix} 87.0 \\ 87.2 \end{vmatrix}$	16 17	506. 5 507. 5	98. 4 98. 6	76 77	565. 4 566. 4	110.9
38	331.8	64.5	98	390.7	75.9	58	449.6	87.4	18	508.5	98.8	78	567. 4	110. 1
39	332.7	64.7	99	391.6	76. 1	59	450.5	87.6	19	509.4	99.0	79	568.3	110.5
40	333. 7	64.9	400	392.6	76.3	60	451.5	87.8	20	510.4	99. 2	80	569. 3	110.7
341	334.7	65.1	401	393.6	76.5	461	452.5	88.0	$\overline{521}$	511.4	99.4	581	570.3	110.9
42	335.7	65.3	02	394.6	76.7	62	453.5	88.2	22	512.4	99.6	82	571.3	111.1
43	336. 7	65. 5	03	395.6	76.9	63	454.5	88.3	23	513.4	99.8	83	572.3	111.3
44	337.6	65.6	04	396.5	77.1 77.3	64	455.4	88.5	24	514.3	100.0	84	573.2	111.5
45 46	338.6 339.6	65. 8 66. 0	05 06	397. 5 398. 5	77.3	65 66	456. 4 457. 4	88. 7 88. 9	25 26	515.3 516.3	100. 2 100. 4	85 86	574. 2 575. 2	111.7 111.8
47	340.6	66. 2	07	399.5	77. 7	67	457.4	89.1	26 27	517.3	100.4	87	576. 2	111.8
48	341.6	66.4	08	400.5	77. 9	68	459.4	89.3	28	518.3	100.8	88	577.2	112. 1 112. 3
49	342.6	66.6	09	401.5	78.1	69	460. 4	89.5	29	519.3	101.0	89	578. 2	112.4
50	343.5	66.8	10	402.4	78. 2	70	461.3	89.7	30	520.2	101.2	90	579.1	112.6
351	344.5	67.0	411	403.4	78.4	471	462. 3	89. 9	531	521.2	101.4	591	580.1	112.8
52	345.5	67. 2	12	404. 4	78.6	72	463. 3	90.1	32		101.6		581.1	113.0
53 54	346.5	67. 4 67. 5	13 14	405.4	78.8 79.0	73 74	464.3	90.3	33 34	523. 2	101. 7 101. 8	$93 \\ 94$	582. 1 583. 1	113.2
55	347. 5 348. 4	67. 7	15	406. 4 407. 3	79. 0	75	465.3 466.2	90. 4 90. 6	$\frac{34}{35}$	524. 2 525. 1	101. 8	95	584.0	113. 3 113. 5
56	349. 4	67.9	16	408.3	79.4	76	467. 2	90.8	36	526. 1	102. 2	96	585.0	113. 7
57	350. 4	68.1	17	409.3	79.6	77	468.2	91.0	37	527. 1	102.4	97	586.0	113.9
58	351, 4	68.3	18	410.3	79.8	78	469.2	91.2	38	528.1	102.6	98	587.0	114.1
59	352.4	68.5	19	411.3	80.0	79	470.2	91.4	39	529.1	102.8	99	588.0	114.3
60	353.4	68.7	20	412.3	80.1	80	471.1	91.6	40	530. 1	103.0	600	589.0	114.5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Don	Tet	Dist.	Den	Let
2750.	Dep.	Lia.v.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	D180.	Dep.	Lat.	DIST.	Dep.	Lat.

79° (101°, 259°, 281°).

TABLE 2.

Difference of Latitude and Departure for 12° (168°, 192°, 348°).

		1	2711	0101100 0			- Dopt	i tui c		(100 ,	102,0	10).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.2	61	59.7	12.7	121	118.4	25. 2	181	177.0	37.6	241	235. 7	50.1
2	2.0	0.4	62	60.6	12.9	22	119.3	25.4	82	178.0	37.8	42	236.7	50.3
3	2.9	0.6	63	• 61. 6	13.1	23	120.3	25.6	83	179.0	38.0	43	237.7	50.5
4	3.9	0.8	64	62.6	13.3	24	121.3	25.8	84	180.0	38.3	44	238.7	50.7
5 6	4.9 5.9	1.0	65 66	63.6	13. 5 13. 7	$\frac{25}{26}$	122.3 123.2	26. 0 26. 2	85 86	181. 0 181. 9	38.5	45 46	239.6 240.6	50.9 51.1
7	6.8	1.5	67	65. 5	13.9	27	124. 2	26. 4	87	182. 9	38. 9	47	241.6	51.4
8	7.8	1.7	68	66. 5	14.1	$\overline{28}$	125. 2	26.6	88	183. 9	39.1	48	242.6	51.6
9	8.8	1.9	69	67.5	14.3	29	126. 2	26.8	89	184.9	39.3	49	243.6	51.8
_10	9.8	2.1	70	68.5	14.6	30	127.2	27.0	90	185.8	39.5	50	244.5	52.0
11	10.8	2.3	71	69.4	14.8	131	128. 1	27. 2	191	186.8	39.7	251	245.5	52.2
12	11.7	2.5	72	70.4	15.0	32	129.1	27.4	92	187.8	39.9	52	246.5	52.4
13 14	12.7 13.7	2. 7 2. 9	73 74	71.4 72.4	15. 2 15. 4	33 34	130. 1 131. 1	27. 7 27. 9	93 94	188. 8 189. 8	40.1	53 54	247.5 248.4	52.6
15	14.7	3.1	75	73.4	15. 6	35	132.0	28.1	95	190.7	40.5	55	249.4	52.8 53.0
16	15.7	3.3	76	74.3	15.8	36	133.0	28.3	96	191.7	40.8	56	250. 4	53. 2
17	16.6	3.5	77	75.3	16.0	37	134.0	28.5	97	192.7	41.0	57	251.4	53.4
18	17.6	3.7	78	76. 3	16.2	38	135.0	28.7	98	193.7	41. 2	58	252.4	53.6
19	18.6	4.0	79	77.3	16.4	39	136.0	28.9	99	194.7	41.4	59	253.3	53.8
20	19.6	4.2	80	78.3	16.6	40	136.9	29.1	200	195.6	41.6	60	254.3	54.1
$\frac{21}{22}$	$20.5 \\ 21.5$	4.4	81 82	79. 2 80. 2	16. 8 17. 0	$\frac{141}{42}$	137. 9 138. 9	$ \begin{array}{c} 29.3 \\ 29.5 \end{array} $	$\frac{201}{02}$	196. 6 197. 6	41.8 42.0	261 62	255.3 256.3	54.3 54.5
23	$\frac{21.5}{22.5}$	4.8	83	81. 2	17.3	43	139. 9	$\frac{29.5}{29.7}$	03	198.6	42.0	63	257.3	54. 7
24	23. 5	5.0	84	82. 2	17.5	44	140.9	29. 9	04	199.5	42.4	64	258.2	54.9
$2\overline{5}$	24.5	5. 2	85	83.1	17.7	45	141.8	30.1	05	200.5	42.6	$6\overline{5}$	259. 2	55. 1
26	25.4	5.4	86	84.1	17.9	46	142.8	30.4	06	201.5	42.8	66	260.2	55, 3
27	26. 4	5.6	87	85.1	18.1	47	143.8	30.6	07	202. 5	43.0	67	261. 2	55.5
28 29	27.4	5.8	88	86.1	18.3	48	144.8	30.8	08	203.5	43. 2	68	262.1	55.7
30	$28.4 \\ 29.3$	$6.0 \\ 6.2$	89 90	87. 1 88. 0	18.5 18.7	49 50	145.7 146.7	$31.0 \\ 31.2$	09 10	204. 4 205. 4	43.5	69 70	263.1 264.1	55. 9 56. 1
31	30.3	$\frac{6.2}{6.4}$	91	89. 0	18.9	151	147.7	31.4	211	206. 4	43.9	$\frac{10}{271}$	265.1	56.3
32	31.3	6.7	92	90.0	19.1	52	148.7	31. 6	12	207. 4	44.1	72	266. 1	56.6
33	32.3	6.9	93	91.0	19.3	53	149.7	31.8	13	208.3	44.3	73	267.0	56.8
34	33. 3	7.1	94	91.9	19.5	54	150.6	32.0	14	209.3	44.5	74	268.0	57.0
35 36	34. 2 35. 2	7.3	95 96	92.9 93.9	19.8	55	151.6	32. 2	15	210.3	44.7	75	269.0	57.2
37	36. 2	7. 5 7. 7	97	94. 9	$\begin{bmatrix} 20.0 \\ 20.2 \end{bmatrix}$	56 57	152.6 153.6	32. 4 32. 6	$\frac{16}{17}$	211. 3 212. 3	44. 9 45. 1	76 77	270. 0 270. 9	57.4 57.6
38	37. 2	7. 9	98	95. 9	20.4	58	154. 5	32. 9	18	213. 2	45.3	78	271.9	57.8
39	38.1	8.1	99	96.8	20.6	59	155.5	33. 1	19	214.2	45.5	79	272. 9	58.0
40	39. 1	8.3	100	97.8	20.8	_ 60	156.5	33.3	20	215. 2	45.7	80	273.9	58.2
41	40.1	8.5	101	98.8	21.0	161	157. 5	33. 5	221	216. 2	45.9	281	274.9	58.4
42	$41.1 \\ 42.1$	8.7	02	99.8	21.2	62	158.5	33. 7	22	217.1	46. 2	82	275.8	58.6
43	43.0	$8.9 \\ 9.1$	03 04	100. 7 101. 7	$21.4 \\ 21.6$	63 64	159.4 160.4	$33.9 \\ 34.1$	23 24	218. 1 219. 1	46. 4 46. 6	83 84	276. 8 277. 8	58.8 59.0
45	44.0	9.4	05	102.7	21.8	65	161.4	34.3	25	220. 1	46.8	85	278.8	59.3
46	45. 0	9.6	06	103.7	22.0	66	162. 4	34.5	26	221.1	47.0	86	279.8	59.5
47	46.0	9.8	07	104.7	22.2	67	163.4	34.7	27	222.0	47.2	87	280.7	59.7
48	47.0	10.0	08	105.7	22.5	68	164.3	34.9	28	223.0	47.4	88	281.7	59.9
49 50	47. 9 48. 9	10.2	09 10	106.6	22.7 22.9	69	165.3	35.1	29	224.0	47.6	89	282.7	60.1
$\frac{50}{51}$	49.9	$\frac{10.4}{10.6}$	111	$\frac{107.6}{108.6}$	$\frac{22.9}{23.1}$	$\frac{70}{171}$	$\frac{166.3}{167.3}$	35. 3 35. 6	$\frac{30}{231}$	$\frac{225.0}{226.0}$	47.8	$\frac{90}{291}$	$\frac{283.7}{284.6}$	$\frac{60.3}{60.5}$
52	50.9	10.8	12	109.6	23. 3	72	168. 2	35.8	$\frac{231}{32}$	226. 9	48.0	92	284.6	60. 5
53	51.8	11.0	13	110.5	23.5	73	169. 2	36.0	33	227. 9	48.4	93	286.6	60.9
54	52.8	11.2	14	111.5	23.7	74	170.2	36.2	34	228.9	48.7	94	287.6	61.1
55	53.8	11.4	15	112.5	23.9	75	171.2	36.4	35	229.9	48. 9	95	288.6	61.3
56 57	54. 8 55. 8	11. 6 11. 9	16	113.5	24.1	76	172.2	36.6	36	230.8	49.1	96	289.5	61.5
58	56.7	12.1	17 18	114. 4 115. 4	$24.3 \\ 24.5$	77 78	173. 1 174. 1	36. 8 37. 0	37 38	$231.8 \\ 232.8$	49.3 49.5	97 98	290. 5 291. 5	61.7 62.0
59	57. 7	$\cdot 12.3$	19	116.4	$\frac{24.5}{24.7}$	79	175. 1	37. 2	39	233. 8	49.7	99	292.5	62. 2
60	58.7	12.5	20	117.4	24. 9	80	176.1	37.4	40	234.8	49.9	300	293. 4	62.4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
										·············			··········	

78° (102°, 258°, 282°).

TABLE 2.

[Page 555

Difference of Latitude and Departure for 12° (168°, 192°, 348°).

			1711161	Carce of		ac and	Depart		(100 , 10	-, 016	·).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	294.4	62. 6	361	353. 1	75.0	421	411.8	87.5	481	470.5	100.0	541	529. 2	112.5
02	295.4	62.8	62	354. 1	75. 2	22	412.8	87.7	82	471.5	100. 2	42	530. 2	112.7
03	296.4	63.0	63	355.1	75.4	23	413.8	87.9	83	471.5 472.5	100.4	43	531.1	112.9
04	297.4	63.2	64	356.0	75. 7	24	414.7	88.1	84	1 473.4	100.6	44	532.1	113.1
05	298.3	63.4	65	357.0	75.9	25	415.7	88.3	85	474.4	100.8	45	533. 1	113.3 113.5
06	299.3	63.6	66	358.0	76.1	$\frac{26}{27}$	416.7	88.6	86	475.4	101.0		534.1	113.5
07 08	300.3	63.8 64.0	67 68	359. 0 360. 0	76.3 76.5	28	417.7 418.6	88. 8 89. 0	87 88	476. 4	101. 2 101. 4	47 48	535.1	113.7
09	302.2	64. 2	69	360. 9	76.7	29	419.6	89.2	89	478.3	101. 6	49	537.0	113.9 114.1
10	303. 2	64. 4	70	361. 9	76.9	30	420.6	89. 4	90	479.3	101.9	50	538.0	114.4
311	304.2	64.6	371	362. 9	77.1	431	421.6	89.6	491	480. 3	102.1	551	538.9	114.6
12	305. 2	64.8	$7\overline{2}$	363. 9	77.3	32	422. 6	89.8	92	481.2	102.3	52	539.9	114. 8
13	306. 2	65. 1	73	364.8	77.5 77.7	33	423.5	90.0	93	482. 2 483. 2	102.5	53	540.9	115. 0 115. 2
14	307.1	65.3	74	365.8	77.7	34	424.5	90.2	94	483. 2	102.7	54	541.9	115. 2
15	308.1	65. 5	75	366.8	77.9	35	425.5	90.4	95	1 484. 2	102. 9	55	542.9	115.4
16	309.1	65.7	76	367.8	78.2	36	426.5	90.6	96	485. 2	103.1	56	543.8	115.6
17 18	310. 1 311. 1	65. 9 66. 1	77 78	368. 8 369. 7	78. 4 78. 6	37 38	427. 5 428. 4	90.8	97 98	486. 1 487. 1	103.3	57 58	544.8 545.8	115.8 116.0
19	312.0	66.3	79	370.7	78.8	39	429.4	91.3	99	488.1	103. 8	59	546.8	116. 2
20	313.0	66.5	80	371.7	79.0	40	430. 4	91.5	500	489.1	104.0	60	547.8	116. 2
321	314.0	66.7	381	372.7	79.2	441	431.4	91.7	501	490.0	104. 2	561	548.7	116.6
22	315.0	66. 9	82	373.7	79.4	42	432.3	91.9	02	491.0	104. 4	62	549.7	116.8
23	315.9	67.1	83	374.6	79.6	43	433.3	92. 1	03	491. 0 492. 0	104.6	63	550.7	116.8 117.0
22 23 24	316.9	67.3	84	375.6	79.8	44	434.3	92.3	04	1 493, 0	104.8	64	551.7	117.2
25	317.9	67.6	85	376.6	80.0	45	435. 3	92.5	05	494. 0 495. 0	105.0	65	552.7	117.4
26	318.9	67.8	86	377.6	80.2	46	436.3	92.7	06	495.0	105. 2	66	553.7	117.6
27	319.9	68.0	87	378.5	80.4	47	437.2	92.9	07	495.9	105.4	67	554.6	117.8
28 29	320. 8 321. 8	68. 2 68. 4	88 89	379.5 380.5	80. 7 80. 9	48 49	438. 2 439. 2	93. 1 93. 3	08	496. 9	105.6 105.8	68 69	555.6	118. 0 118. 2
30	322.8	68.6	90	381.5	81.1	50	440.2	93. 5	10	497. 9 498. 9	106. 0	70	556.6 557.5	118.5
331	323.8	68.8	391	382.5	81.3	451	441.1	93.7	511	499.8	$\frac{106.0}{106.2}$	571	558.5	118.7
32	324. 7	69.0	92	383. 4	81.5	52	442.1	93. 9	12	500.8	106. 4	72	559.5	118.9
33	325.7	69.2	93	384. 4	81.7	53	443.1	94.1	13	501.8	106.6	73	560.5	118. 9 119. 1 119. 3
34	326.7	69.4	94	385.4	81.9	54	444.1	94.4	14	501. 8 502. 8	106.8	74	561.5	119.3
35	327. 7	69.6	95	386. 4	82.1	55	445.1	94.6	15	503.7	107.0	75	562.4	119.5
36	328.7	69.8	96	387.3	82. 3	56	446.0	94.8	16	504. 7 505. 7	107.2	76	563.4	119.7
37	329.6	70.0	97	388.3	82.5	57	447.0	95.0	17	505.7	107.4	77	564.4	119.9
38 39	330. 6 331. 6	70.3 70.5	98 99	389. 3 390. 3	82. 7 82. 9	58 59	448.0	95. 2 95. 4	18	506. 7	107.6	78 70	565.4	120.1
40	332.6	70.7	400	391.3	83. 1	60	449. 0 450. 0	95. 6	19 20	507. 7 508. 7	107. 8 108. 1	79 80	566. 4 567. 4	120. 3 120. 6
341	333.5	70.9	401	392. 2	83. 4	461	450.9	95. 8	521	509.6	108. 3	581	568.3	120.0
42	334.5	71.1	02	393. 2	83. 6	62	451.9	96.0	22	510.6	108.5	82	569.3	120. 8 121. 0
43	335.5	71.3	03	394.2	83.8	63	452.9	96. 2	23	511.6	108.7	83	570.3	121. 2
44	336.5	71.5	04	395.2	84.0	64	453.9	96.5	24	512.5 513.5	108.9	84	571.2	121.4
45	337.5	71.7	05	396. 2	84.2	65	454.8	96.7	25	513.5	109.2	85	572.2	121.6
46	338. 4	71.9	06	397.1	84.4	66	455.8	96. 9	26	514.5	109.4	86	573.2	121.8
47 48	339.4	72.1	07	398.1	84.6	67	456.8	97.1	27	515.5	109.6	87	574. 2 575. 2	122.0
48	340. 4 341. 4	$72.3 \\ 72.5$	$\begin{array}{c c} 08 \\ 09 \end{array}$	399. 1 400. 1	84. 8 85. 0	68 69	457. 8 458. 8	97.3 97.5	28 29	$516.5 \\ 517.5$	109.8 110.0	88	$575.2 \\ 576.2$	122.2
50	342.4	72. 7	10	401.0	85. 2	70	459.7	97. 5	30	517. 5	110.0	89 90	577.1	122.4 122.6
351	343.3	73.0	411	402.0	85.4	471	460.7	97. 9	531	519.4	110. 4	591	578.1	122. 8
52	344.3	73. 2	12	403.0	85.6	72	461.7	98.1	32	520. 4	110. 4		579.1	123, 0
53	345.3	73.4	13	404.0	85.8	73	462. 7	98.3	33	521.3	110.8	93	580. 0	123. 2
54	346.3	73.6	14	405.0	86.1	74	463.6	98.5	34	522.3	111.0	94	581.0	$123.2 \\ 123.4$
55	347.2	73.8	15	405.9	86.3	75	464.6	98.7	35	523. 3	111.2	95	582.0	123.6
56	348.2	74.0	16	406.9	86.5	76	465.6	98.9	36	524.3	111.4	96	583.0	123.9
57 58	349, 2 350, 2	$74.2 \\ 74.4$	17	407. 9 408. 9	86.7	77	466.6	99.1	37	525.3	111.6	97	584.0	124.1
59	351.2	74. 4	18 19	408. 9	86. 9 87. 1	78 79	467. 6 468. 5	99. 4 99. 6	38 39	526.2 527.2	111.8 112.0	98	584. 9 585. 9	$124.3 \\ 124.5$
60	352.1	74.8	20	410.8	87.3	80	469.5	99.8	40	527.2 528.2	112.0	99 600	586. 9	124.5 124.7
				2.3.0			100.0	00.0	10	320.2	112.0	000	500.0	121.1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	1			•										
					-	TOO (1)	000 050	0000	1 1					

78° (102°, 258°, 282°).

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TABLE 2.

Difference of Latitude and Departure for 13° (167°, 193°, 347°).

			Diner	ence of i	Latitud	Cana	Departe	110 101	10 (1	.01 , 100	, 517	<i>)</i> ·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.2	61	59.4	13.7	121	117.9	27.2	181	176.4	40. 7	241	234.8	54.2
$\overline{2}$	1.9	0.4	62	60.4	13. 9	$\overline{22}$	118.9	27.4	82	177.3	40. 9	$\frac{1}{42}$	235.8	54.4
3	2. 9	0.7	63	61.4	14.2	23	119.8	27.7	83	178.3	41.2	43	236.8	54.7
4	3.9	0.9	64	62.4	14.4	24	120.8	27.9	84	179.3	41.4	44	237.7 238.7	54.9
5	4.9	1.1	65	63.3	14.6	25	121.8 122.8 123.7	28. 1	85	180.3	41.6	45	238. 7	55.1
6	5.8	1.3	66	64.3	14.8	26	122.8	28. 3	86	181.2	41.8	46	239.7	55.3
7	6.8	1.6	67	65.3	15.1	27	123.7	28.6	87	182. 2	42.1	47	240.7	55.6
8	7.8	1.8	68	66.3	15.3	28	124.7	28.8	88	183. 2	42.3	48	241.6	55.8
9	8.8	2.0	69	67. 2 68. 2	15.5	29	125.7	29.0	89	184.2	42.5	49	242.6	56.0
10	9.7	$\frac{2.2}{2.5}$	70		15.7	30	126.7	29.2	90	185.1	42.7	50	243.6	56.2
$\begin{array}{c} 11 \\ 12 \end{array}$	10. 7 11. 7	$\begin{array}{c} 2.5 \\ 2.7 \end{array}$	$\begin{array}{c} 71 \\ 72 \end{array}$	69. 2 70. 2	16. 0 16. 2	$\begin{array}{c} 131 \\ 32 \end{array}$	127. 6 128. 6	$ \begin{array}{r} 29.5 \\ 29.7 \end{array} $	191	186. 1 187. 1	43.0	$\begin{array}{c} 251 \\ 52 \end{array}$	244.6	56. 5
13	12.7	2. 9	73	71. 1	16. 4	33	129.6	29.7	92 93	188.1	43. 2 43. 4	$\frac{52}{53}$	$245.5 \\ 246.5$	56. 7 56. 9
14	13. 6	3. 1	74	72. 1	16.6	34	130.6	30.1	94	189.0	43.6	54	247.5	57.1
15	14.6	3.4	75	73.1	16. 9	35	131.5	30.4	95	190.0	43.9	55	248.5	57.4
16	15.6	3.6	76	74. 1	17.1	36	132.5	30.6	96	191.0	44.1	56	249. 4	57.6
17	16.6	3.8	77	75. 0	17.3	37	132. 5 133. 5	30.8	97	192.0	44.3	57	250. 4	57.8
18	17.5	4.0	78	76.0	17.5	38	134.5	31.0	98	192.9	44.5	58	251.4	58.0
19	18.5	4.3	79	77.0	17.8	39	135.4	31.3	99	193.9	44.8	59	252.4	58.3
20	19.5	4.5	80	77.9	18.0	40	136.4	31.5	200	194.9	45.0	60	253. 3	58.5
21	20.5	4.7	81	78.9	18.2	141	137.4	31.7	201	195.8	45. 2	261	254.3	58.7
22	21.4	4.9	82	79.9	18.4	42	138.4	31.9	02	196.8	45.4	62	255.3	58. 9
23	22.4	5. 2	83	80.9	18.7	43	139.3	32. 2	03	197.8	45.7	63	256.3	59.2
24	23. 4	5.4	84	81.8	18.9	44	140.3	32.4	04	198.8	45.9	64	257. 2	59.4
25	24.4	5.6	85	82.8	19.1	45	141.3	32.6	05	199.7	46.1	65	258. 2	59.6
$\frac{26}{27}$	25. 3 26. 3	$\begin{array}{c} 5.8 \\ 6.1 \end{array}$	86 87	83. 8 84. 8	19.3 19.6	46	142.3 143.2	32.8	06	200.7	46.3	66	259. 2	59.8
28	$\frac{20.3}{27.3}$	6.3	88	85.7	19.8	47 48	143. 2	33. 1	07 08	201. 7	46. 6 46. 8	67 68	260. 2 261. 1	60. 1 60. 3
29	28.3	6.5	89	86.7	20.0	49	145. 2	33.5	09	203. 6	47.0	69	262.1	60.5
30	29. 2	6.7	90	87.7	20.2	50	146. 2	33. 7	10	204.6	47.2	70	263. 1	60.7
31	${30.2}$	7.0	91	88.7	20.5	151	147.1	34.0	211	205.6	47.5	271	264.1	60.7
32	31. 2	$7.\overset{\circ}{2}$	$9\overline{2}$	89.6	20. 7	52	148.1	34. 2	12	206.6	47.7	72	265.0	61. 2
33	32.2	7.4	93	90.6	20.9	53	149.1	34.4	13	207. 5	47.9	73	266. 0 267. 0	61.4
34	33. 1	7.6	94	91.6	21.1	54	150.1	34.6	14	208.5	48.1	74	267.0	61.6
35	34.1	7.9	95	92.6	21.4	55	151. 0 152. 0 153. 0	34.9	15	209.5	48.4	75	268.0	61.9
36	35. 1	8.1	96	93.5	21.6	56	152.0	35. 1	16	210.5	48.6	76	268. 9 269. 9	62.1
37	36.1	8.3	97	94. 5	21.8	57	153.0	35.3	17	211.4	48.8	77	269.9	62.3
38	37.0	8.5	98	95.5	22.0	58	154.0	35.5	18	212.4	49.0	78	270.9	62.5
39 40	38. 0 39. 0	8.8 9.0	$\frac{99}{100}$	96. 5 97. 4	22.3 22.5	59 60	154.9 155.9	35. 8 36. 0	$\frac{19}{20}$	213. 4 214. 4	49.3 49.5	79 80	271.8 272.8	62. 8 63. 0
41	39.9	$\frac{-3.0}{9.2}$	$\frac{100}{101}$	98.4	99 7	$\frac{-60}{161}$	156. 9	36. 2		$\frac{214.4}{215.3}$				63. 2
42	40. 9	9.4	02	99.4	$22.7 \\ 22.9$	62	157.8	36. 4	$\begin{array}{c} 221 \\ 22 \end{array}$	216.3	49.7 49.9	281	273.8	63. 4
43	41. 9	9.7	03	100.4	23 2	63	158.8	36. 7	23	217.3	50.2	82 83	274. 8 275. 7	63.7
44	42.9	9.9	04	101.3	23. 4	64	159.8	36. 9	$\frac{23}{24}$	218.3	50. 4	84	276.7	63. 7 63. 9
45	43.8	10.1	05	102.3	23. 4 23. 6	65	159. 8 160. 8	37.1	25	219.2	50.6	85	277.7	64.1
46	44.8	10.3	06	103.3	1.23, 8.1	66	161. 7 162. 7 163. 7	37.3	26	220. 2	50.8	86	278, 7	64.3
47	45.8	10.6	07	104.3	24.1	67	162.7	37.6	27	$221.2 \\ 222.2$	51.1	87	279.6	64.6
48	46.8	10.8	08	105. 2	24.3	68	163. 7	37.8	28	222.2	51.3	88	280.6	64.8
49	47.7	11.0	09	106.2	24.5	69	164.7	38.0	29	223. 1	51.5	89	281.6	65.0
50	48.7	11.2	10	107. 2	24.7	70	165.6	38. 2	30	224.1	51.7	90	282.6	65. 2
51	49.7	11.5	111	108. 2	25. 0	171	166.6	38.5	231	225. 1	52.0	291	283. 5	65.5
52	50.7	11.7		109.1	25. 2		167.6	38.7		226.1	52. 2	92	284.5	65.7
53 54	51.6 52.6	11.9	13 14	110.1	25. 4 25. 6	73	168.6	38.9	33	227.0	52.4	93	285.5	65.9
55	53.6	$egin{array}{c c} 12.1 \ 12.4 \ \end{array}$	15	111.1 112.1	25. 9	74 75	$169.5 \\ 170.5$	39. 1 39. 4	34 35	228. 0 229. 0	52. 6 52. 9	94 95	$286.5 \\ 287.4$	66. 1 66. 4
56	54.6	$12.4 \\ 12.6$	16	113.0	26. 1	76	171.5	39.6	36	230.0	53. 1	96	288.4	66.6
57	55. 5	12.8	17	114.0	26.3	77	172.5	39.8	37	230. 9	53. 3	97	289.4	66.8
58	56.5	13.0	18	115.0	26.5	78	173.4	40.0	38	231. 9	53.5	98	290.4	67.0
59	57.5	13.3	19	116.0	26.8	79	174.4	40.3	39	232.9	53.8	99	291.3	67.3
60	58.5	13.5	20	116.9	27.0	80	175.4	40.5	40	233.8	54.0	300	292.3	67.5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
					,	779 (1	03°, 257	0. 2830).				·	
						(1)	00, 201	, 200	<i>j</i> •					

Difference of Latitude and Departure for 13° (167°, 193°, 347°).

		1	лпеге	nce of L	amuae	and.	Departu	re tor :	19 (1	07 , 190	, 547	<i>)</i> •		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	293.3	67.7	361	351.8	81. 2	421	410. 2	94.7	481	468.7	108. 2	541	527.2	121.7
02	294.3	67.9	62	352.7	81.4	22	411.2	94.9	82	469.7	108.4	42	528.1	121.9
03	295.2	68.1	63	353.7	81.6	23	412.2	95.1	83	470.6	108.6	43	529.1	122.1
04	296.2	68.4	64	354.7	81. 9	24	413. 1	95.3	84	471.6	108.8	44	530.1	122.3
05	297.2	68.6	65	355.6	82.1	25	414.1	95.6	85	472.6	109.0 109.3	45	531. 1 532. 0	$122.5 \\ 122.8$
06	298.2 299.1	68.8 69.0	66 67	356.6 357.6	82. 3 82. 5	$\frac{26}{27}$	415. 1 416. 1	95. 8 96. 0	86 87	473.6 $ 474.5 $	109.5 109.5	46 47	533.0	123. 0
07 08	300.1	69.3	68	358.6	82.8	28	417.0	96. 2	88	475.5	109.7	48	534. 0	123. 2
09	301.1	69.5	69	359.5	83.0	29	418.0	96.5	89	476.5	109.9	49	535.0	123. 4
10	302.1	69.7	70	360.5	83. 2	30	419.0	96.7	90	477.5	110.1	50	535.9	123.7
311	303.0	69.9	371	361.5	83.4	431	420.0	96.9	491	478.4	110.4	551	536. 9	123.9
12	304.0	70.2	$\begin{array}{c} 72 \\ 73 \end{array}$	362.5	83. 7	32	420.9	97.1	92	479.4	110.6	52	537. 9	124. 1
13	305.0	70.4	73	363. 4	83. 9	33	421.9	97.4	93	480.4	110.9	53	538.9	124. 4
14	306.0	70.6	74	364.4	84.1	$\frac{34}{35}$	422.9 423.9	97.6	94 95	481. 4 482. 3	111. 1 111. 3	54 55	539.8 540.8	$124.6 \\ 124.9$
15 16	306. 9 307. 9	70.8	75 76	365. 4 366. 4	84. 3 84. 6	36	423. 9	97. 8 98. 0	96	483.3	111.5	56	541.8	125. 1
17	308.9	71.3	77	367. 3	84.8	37	425.8	98.3	97	484.3	111.8	57	542.8	125, 3
18	309.9	71.5	78	368. 3	85. 0	38	426.8	98.5	98	485.3	112.0	58	543.7	125.5
19	310.8	71.7	79	369.3	85. 2	39	427.8	98.7	99	486. 2	112.2	59	544.7	125.8
20	311.8	72.0	80	370.3	85.5	40	428.7	98. 9	500	487.2	112.4	60	545.7	126.0
321	312.8	72.2	381	371.2	85.7	441	429.7	99. 2	501	488 2	112.6	561	546. 7	126. 2
22 23	313.8	72.4	82	372.2	85.9	42	430.7	99.4	02	489. 2	112.9	62	547.6	126.4
23	314.7	72.6	83	373.2	86. 1 86. 4	43	$431.6 \\ 432.6$	99. 6 99. 8	03 04	490. 1 491. 1	113. 1 113. 3	63 64	548.6 549.6	126. 7 126. 9
24 25	315. 7 316. 7	72.9 73.1	84 85	$374.2 \\ 375.1$	86.6	44 45	432.6	100.1	05	491.1	113.5 113.5	65	550.6	120. 9
26	317.6	73.3	86	376.1	86.8	46	434.6	100. 1	06	493.1	113.8	66	551.5	127.3
27	318.6	73.5	87	377. 1	87.0	47	435.5	100, 5	07	494.0	114.0	67	552.5	127.6
28	319.6	73.8	88	378. 1	87.3	48	436.5	100.7	08	495.0	114.2	68	553.5	127.8
29	320.6	74.0	89	379.0	87.5	49	437.5	101.0	09	496.0	114.5	69	554.5	128.0
30	321.5	74.2	90	380.0	87.7	50	438.5	101.2	10	496.9	114.7	70_	555.4	128.3
331	322.5	74.4	391	381.0	87. 9	451	439.4	101.4	511	497.9	114.9	571	556.4	128.5
32 33	323.5	74.7	92	382.0	88. 2	52	440.4	101.6	12	498.9	115.1	72 73	557. 4 558. 4	128.7 128.9
34	324. 5 325. 4	74. 9 75. 1	93 94	382. 9 383. 9	88. 4 88. 6	53 54	441. 4 442. 4	101. 9 102. 1	13 14	499. 9 500. 8	115.4 115.6	74	559.3	129. 2
35	326. 4	75.3	95	384.9	88.8	55	443.3	102. 1	15	501.8	115.8	$7\overline{5}$	560.3	129.4
36	327.4	75.6	96	385. 9	89. 1	56	444.3	102.5	16	502. 8	116.0	76	561. 3	129.6
37	328.4	75.8	97	386.8	89.3	57	445.3	102.8	17	503.8	116.3	77	562.3	129.8
38	329.3	76.0	98	387.8	89.5	58	446.3	103.0	18	504.7	116.5	78	563. 2	130.0
39	330.3	76. 2	99	388.8	89.7	59	447.2	103.2	19	505. 7	116.7	79	564.2	130.2
40	331.3	76.5	400	389.8	90.0	60	448.2	103.4	20	506.7	116.9	80	565.2	130.4
341	332.3	76. 7	401	390.7	90.2	461	449. 2	103.7	521	507.7	117. 2	581	566. 2	130.7
42 43	333. 2	76.9 77.1	$02 \\ 03$	391.7 392.7	90.4	62 63	450. 2 451. 1	103. 9 104. 1	$\frac{22}{23}$	508.6 509.6	117.5 117.7	82 83	567. 1 568. 1	131. 0 131. 2
44	335. 2	77.4	04	393.6	90.8	64	452.1	104. 3	$\frac{23}{24}$	510.6	117.9	84	569.1	131. 4
45	336. 2	77.6	05	394.6	91.1	65	453.1	104.6	25	511.6	118.1	85	570.1	131.6
46	337.1	77.8	06	395.6	91.3	66	454.1	104.8	26	512.5	118.3	86	571.0	131.8
47	338.1	78.0	07	396.6	91.5	67	455.0	105.0	27	513.5	118.5	87	572.0	132.0
48	339.1	78.3	08	397.5	91.7	68	456.0	105. 2	28	514.5	118.7	88	573.0	132.3
49 50	340.1	78.5	09 10	398. 5 399. 5	92.0 92.2	69	457. 0 458. 0	105.5	29 30	515. 5 516. 4	119.0 119.2	89 90	573. 9 574. 9	132.5
351	$\frac{341.0}{342.0}$	78.9	411	400.5	92.4	70 471	458. 9	105.7 105.9		517.4	$\frac{119.2}{119.4}$		575.9	$\frac{132.8}{133.0}$
52	343.0	79. 2	12	400.3	92.4	72	458. 9	106. 1		517.4				133. 0
53	344.0	79.4	13	402.4	92.9	73	460.9	106. 4		519.4	119.9	93	577.8	133. 4
54	344. 9	79.6	14	403.4	93.1	74	461.9	106.6	34	520.3	120.1	94	578.8	133.6
55	345.9	79.8	•15	404.4	93.3	75	462.8	106.8	35	521.3	120.3	95	579.8	133.8
56	346.9	80.1	16	405.3	93.5	76	463.8	107.0	36	522.3	120.5	96	580.8	134.0
57	347.9	80.3	17	406.3	93.8	77	464.8	107.3	37	523.3	120.8	97	581.7	134.3
58 59	348. 8 349. 8	80.5	18 19	407.3	94.0 94.2	78 79	465. 8 466. 7	$\begin{vmatrix} 107.5 \\ 107.7 \end{vmatrix}$	38 39	524. 2 525. 2	$\begin{vmatrix} 121.0 \\ 121.2 \end{vmatrix}$	98 99	582. 7 583. 7	134. 5 134. 8
60	350.8	81.0	20	409. 2	94. 4	80	467.7	107. 7	40	526. 2	121.2 121.5	600	584.6	135.0
		1		100.2	0 1. 1			101.0		520.2	121.0		301.0	100.0
Dist.	Dep.	Lat.	Dist	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
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						770 /1	11110 057	u 0000						

77° (103°, 257°, 283°).

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TABLE 2.

Difference of Latitude and Departure for 14° (166°, 194°, 346°).

L												·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.2	61	59. 2	14.8	121	117.4	29.3	181	175.6	43.8	241	233. 8	58.3
$\hat{2}$	1.9	0.5	$6\overline{2}$	60. 2	15.0	22	118.4	29.5	82	176.6	44.0	42	234.8	58.5
$\bar{3}$	$\hat{2.9}$	0.7	63	61.1	15. 2	23	119.3	29.8	83	177.6	44.3	43	235.8	58.8
4	3.9	1.0	64	62.1	15.5	24	120.3	30.0	84	178.5	44.5	44	236.8	59.0
5	4.9	1.2	65	63.1	15.7	25	121.3	30. 2	85	179.5	44.8	45	237.7	59.3
6	5.8	1.5	66	64.0	16.0	26	122.3	30.5	86	180.5	45.0	46	238. 7	59.5
7	6.8	1.7	67	65.0	16. 2	27	123. 2	30.7	87	181.4	45.2	47	239.7	59.8
8	7.8	1.9	68	66. 0	16.5	28	124. 2	31.0	88	182.4	45.5	48	240.6	60.0
9	8.7	2.2	69	67.0	16.7	29	125. 2	31.2	89	183.4	45.7	49	241.6	60. 2
10	$\frac{9.7}{13.7}$	2.4	70	$\frac{67.9}{32.9}$	16.9	30	126.1	31.4	90	184.4	46.0	50	242.6	60.5
111	10. 7	$2.7 \\ 2.9$	71	68. 9	17.2	131	127.1	31.7	191	185.3	46. 2	251	243.5	60.7
12	11.6	3.1	$\frac{72}{79}$	69.9 70.8	17. 4 17. 7	$\frac{32}{33}$	128.1	31.9	$\frac{92}{93}$	186.3 187.3	46. 4 46. 7	52	244.5	61.0
13 14	12. 6 13. 6	3.4	73 74	71.8	17. 7	34	129.0 130.0	$32.2 \\ 32.4$	93	188. 2	46. 9	53 54	$245.5 \\ 246.5$	61. 2 61. 4
15	14.6	3.6	75	72. 8	18.1	35	131.0	$32.7 \ 32.7$	95	189. 2	47. 2	55	247.4	61. 7
16	15.5	3. 9	76	73. 7	18. 4	36	132.0	32. 9	96	190. 2	47.4	56	248.4	61.9
17	16.5	4.1	77	74.7	18.6	37	132. 9	33.1	97	191.1	47.7	57	249. 4	62. 2
18	17.5	4.4	78	75.7	18. 9	38	133.9	33.4	98	192.1	47.9	58	250. 3	62.4
19	18.4	4.6	79	76.7	19.1	39	134.9	33.6	99	193.1	48.1	59	251.3	62.7
20	19.4	4.8	80	77.6	19.4	40	135.8	33. 9	200	194.1	48.4	60	252.3	62.9
$\overline{21}$	20. 4	5.1	81	78.6	19.6	141	136.8	34.1	201	195.0	48.6	261	253. 2	63. 1
22	21.3	5.3	82	79.6	19.8	-42	137.8	34.4	02	196.0	48.9	62	254.2	63.4
23	22.3	5.6	83	80.5	20.1	43	138.8	34.6	03	197.0	49.1	63	255. 2	63.6
24	23. 3	5.8	84	81.5	20.3	44	139. 7	34.8	04	197.9	49.4	64	256.2	63.9
25	24.3	6.0	85	82.5	20.6	45	140. 7	35.1	05	198.9	49.6	65	257.1	64.1
26	25. 2	6.3	86	83.4	20.8	46	141.7	35.3	06	199.9	49.8	66	258.1	64.4
27	26. 2	6.5	87	84.4	$21.0 \\ 21.3$	47	$142.6 \\ 143.6$	35. 6 35. 8	07	200.9	50.1	67	259.1	64.6
28 29	27. 2 28. 1	6.8 7.0	88 89	85. 4 86. 4	$\frac{21.5}{21.5}$	48 49	144.6	36.0	08 09	201. 8 202. 8	50.3 50.6	68 69	260. 0 261. 0	64. 8 65. 1
30	29.1	7.3	90	87.3	21.8	50	145.5	36.3	10	203.8	50.8	70	262. 0	65.3
$\frac{30}{31}$	30.1	$\frac{7.5}{7.5}$	91	88.3	22.0	151	146.5	36.5	$\frac{10}{211}$	204.7	51.0	271	263.0	65.6
32	31.0	7. 7	92	89.3	22. 3	52	147.5	36.8	12	205. 7	51. 3	72	263.9	65.8
33	32.0	8.0	93	90. 2	22.5	53	148.5	37.0	13	206. 7	51.5	73	264.9	66.0
34	33. 0	8. 2	94	91.2	22.7	54	149.4	37.3	14	207.6	51.8	74	265.9	66.3
35	34.0	8.5	95	92.2	23.0	55	150.4	37.5	15	208.6	52.0	75	266.8	66.5
36	34. 9	8.7	96	93.1	23. 2	56	151.4	37.7	16	209.6	52.3	76	267.8	66.8
37	35. 9	9.0	97	94.1	23. 5	57	152.3	38.0	17	210.6	52.5	77	268.8	67.0
38	36.9	9.2	98	95.1	23.7	58	153.3	38. 2	18	211.5	52.7	78	269.7	67.3
39	37.8	$9.4 \\ 9.7$	99	96.1	$24.0 \\ 24.2$	59	154.3	38.5	19 20	212. 5 213. 5	53. 0 53. 2	79 80	$\begin{vmatrix} 270.7 \\ 271.7 \end{vmatrix}$	67. 5 67. 7
40	38.8		100	$\frac{97.0}{00.0}$	$\frac{24.2}{24.4}$	60	155. 2	38.7					070 7	68.0
41	39.8	$9.9 \\ 10.2$	101	98. 0 99. 0	24. 4	161	156.2 157.2	38. 9 39. 2	$\begin{array}{c} 221 \\ 22 \end{array}$	214. 4 215. 4	53. 5 53. 7	$\begin{array}{c} 281 \\ 82 \end{array}$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	68.2
42 43	40.8 41.7	10. 4	$\begin{array}{c c} 02 \\ 03 \end{array}$	99. 9	24. 9	62 63	157. 2	39. 4	23	216. 4	53. 9	83	274.6	68.5
44	42.7	10. 4	03	100. 9	25. 2	64	159.1	39.7	24	217.3	54.2	84	275.6	68.7
45	43.7	10. 9	05	101.9	25. 4	65	160.1	39. 9	25	218.3	54. 4	85	276.5	68.9
46	44.6	11.1	06	102.9	25. 6	66	161.1	40.2	26	219.3	54.7	86	277.5	69. 2
47	45. 6	11.4	07	103.8	25.9	67	162.0	40.4	27	220.3	54.9	87	278.5	69.4
48	46.6	11.6	08	104.8	26.1	68	163.0	40.6	28	221.2	55.2	88	279.4	69.7
49	47.5	11.9	09	105.8	26.4	69	164.0	40. 9	29	222.2	55.4	89	280.4	69.9
50	48.5	12.1	10	106.7	26.6	_70	165.0	41.1	30	223.2	55. 6	90	281.4	70.2
51	49.5	12.3	111	107. 7	26. 9	171	165.9	41.4	231	224.1	55.9	291	282.4	70.4
52	50.5	12.6	12	108.7	27.1	72	166.9	41.6	32	225.1	56.1	92	283.3	70.6
53	51.4	12.8	13	109.6	27.3	73	167.9	41.9	33	226.1	56.4	93	284.3	70.9
54 55	52. 4 53. 4	13. 1 13. 3	14 15	110.6 111.6	27. 6 27. 8	74 75	168, 8 169, 8	$\begin{array}{ c c c c }\hline 42.1 \\ 42.3 \\ \end{array}$	34 35	$227.0 \\ 228.0$	56. 6 56. 9	94 95	285. 3 286. 2	71.1
56	54.3	13.5	16	111.6 112.6	28.1	76	170.8	42. 6	36	229.0	57.1	96	287. 2	71.6
57	55.3	13.8	17	113.5	28.3	77	171.7	42.8	37	230.0	57.3	97	288. 2	71.9
58	56.3	14.0	18	114.5	28.5	78	172.7	43.1	38	230. 9	57.6	98	289.1	72.1
59	57.2	14.3	19	115.5	28.8	79	173.7	43. 3	39	231.9	57.8	99	290.1	72.3
60	58. 2	14.5	20	116.4	29.0	80	174.7	43.5	40	232.9	58.1	300	291.1	72.6
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
1						700 (1	040 056	0 0040	\					

76° (104°, 256°, 284°).

TABLE 2.

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Difference of Latitude and Departure for 14° (166°, 194°, 346°).

Dist. Lat. Dep. Dist. Di				рицеге	ence of 1	Lautud	e and	Departi	ire for	14 (1	00 , 194	, 540)•		
03 294, 0 73, 0 62 351, 2 87, 6 22 409, 4 102, 1 82 467, 7 116, 6 42 525, 9 131, 4 04 294, 9 73, 5 64 353, 2 88, 0 24 411, 4 102, 6 84 469, 6 117, 1 44 527, 9 131, 6 05 295, 9 73, 6 65 354, 1 883, 25 412, 3 102, 8 85 470, 6 117, 1 44 527, 9 131, 6 06 295, 9 74, 0 66 355, 1 88, 5 25 413, 3 103, 0 86 471, 5 117, 6 46 529, 8 132, 9 07 297, 8 74, 2 67 336, 1 88, 8 27 414, 3 103, 0 86 471, 5 117, 6 46 529, 8 132, 1 08 298, 8 74, 5 68 357, 0 89, 0 28 415, 3 103, 5 88 473, 5 118, 0 48 531, 7 132, 6 08 298, 8 74, 7 68 367, 0 89, 0 28 415, 3 103, 5 88 473, 5 118, 0 48 531, 7 132, 8 10 300, 8 75, 0 70 359, 0 88, 5 30 417, 2 104, 0 90 475, 4 118, 5 55 533, 7 132, 8 11 301, 7 75, 2 371 359, 9 88, 7 431 418, 2 104, 2 474, 4 118, 6 55 536, 6 133, 6 12 302, 7 75, 5 72 300, 9 90, 0 32 419, 1 104, 5 92 477, 4 110, 0 52 555, 6 133, 6 13 303, 7 75, 7 73 301, 9 90, 5 34 421, 1 105, 0 94 479, 3 119, 5 54 537, 5 134, 0 15 305, 6 76, 2 75 364, 8 90, 9 36 422, 0 105, 2 94 449, 3 119, 5 54 537, 5 134, 0 16 306, 6 76, 4 76 364, 8 90, 9 36 422, 0 105, 2 94 449, 489, 3 113, 5 54 538, 5 134, 3 18 308, 5 77, 4 80, 8 90, 9 36 422, 0 105, 2 94 449, 3 110, 5 54 538, 5 134, 3 18 308, 5 77, 4 80, 9 80, 0 36 420, 0 105, 2 94 449, 3 110, 5 54 538, 5 134, 3 18 308, 5 77, 4 80, 9 80, 0 36 420, 0 105, 2 94 449, 3 110, 5 54 538, 5 134, 3 18 308, 5 77, 4 80, 9 80, 0 36 420, 0 105, 2 94 449, 3 110, 5 54 538, 5 134, 3 18 308, 5 77, 4 80, 9 80, 0 36 420, 0 105, 2 94 449, 3 110, 5 54 548, 5 134, 5 18	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
03 294. 0 73.3 63 352. 2 87.8 23 410.4 102.6 84 496. 6 117.1 44 527.9 131.6 05 295.9 73.8 65 354.1 88.3 25 412.3 102.8 85 470.6 117.3 45 527.9 131.6 06 296.9 74.0 66 355.1 88.5 26 413.3 103.0 86 471.5 117.6 46 529.8 132.1 07 297.8 74.2 67 356.1 88.8 27 414.3 103.3 87 472.5 117.8 47 530.8 132.1 07 297.8 74.2 67 356.1 88.8 27 414.3 103.3 87 472.5 117.8 47 530.8 132.1 09.2 89.8 74.7 69 356.0 89.2 29 416.2 103.8 89 474.5 118.3 49 532.7 132.6 09 299.8 74.7 69 356.0 89.2 29 416.2 103.8 89 474.5 118.3 49 532.7 132.6 10 300.8 75.0 70.5 99.0 89.7 431 418.2 104.2 491 476.4 118.8 551 534.6 133.3 112 302.7 75.5 72 371 359.9 89.7 431 418.2 104.2 491 476.4 118.8 551 534.6 133.3 112 302.7 75.5 72 300.9 90.0 32 419.1 104.5 92 477.4 119.0 52 535.6 133.6 133.6 133.6 86 67 6.6 2 75 363.8 90.7 35 422.0 105.2 95 480.3 119.7 55 538.5 134.3 15 305.6 76.2 75 363.8 90.7 35 422.0 105.2 95 480.3 119.7 55 538.5 134.3 16 306.6 76.4 76 364.8 90.9 36 423.0 105.5 96 480.3 119.7 55 538.5 134.3 17 307.6 77.4 80 308.7 71.9 30.7 42.5 10.5 99 484.2 120.7 5 581.3 13.5 13.5 13.5 13.5 13.5 13.5 13.5 1	301	292.0	72.8	361	350. 2	87.3	421	408.5	101.8	481	466.7	116.3	541	525. 0	130.9
04 294, 9 73, 5 64 353, 2 88, 0 24 411, 4 102, 6 84 499, 6 117, 1 44 527, 9 131, 6 66 295, 9 74, 0 66 355, 1 88, 5 26 413, 3 102, 8 85 470, 6 117, 1 44 528, 8 332, 1 67 297, 8 74, 2 67 366, 1 88, 5 26 413, 3 103, 0 86 471, 5 117, 6 46 529, 8 332, 1 69 298, 8 74, 5 68 357, 0 89, 0 28 415, 3 103, 3 87 472, 5 117, 6 46 529, 8 332, 1 303, 8 74, 72, 5 117, 6 46 529, 8 332, 1 303, 8 74, 75 68 357, 0 89, 0 28 415, 3 103, 3 87 474, 5 118, 5 50 533, 7 312, 8 103, 8 89 74, 5 183, 1 475, 1 183, 4 532, 7 328, 8 103, 8 87 77, 7 73, 8 8 8 74, 1 104, 5 92 477, 4 119, 0 52 535, 6 133, 6 13		293.0													
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27 317.3 79.1 87 375.5 93.6 47 433.7 108.1 07 491.9 122.6 67 550.1 137.1 28 318.2 79.3 88 376.4 93.8 48 434.7 108.4 08 492.9 122.9 68 551.1 137.6 30 320.2 79.8 90 378.4 94.3 50 436.6 108.6 09 493.9 123.1 69 552.1 137.6 30 320.2 79.8 90 378.4 94.3 50 436.6 108.8 10 494.9 123.4 70 553.1 137.9 131 321.1 80.1 391 379.4 94.6 451 437.6 109.1 511 495.8 123.6 571 554.0 138.1 32 322.1 80.3 92 380.3 94.8 52 438.5 109.3 12 496.8 123.8 72 555.0 138.3 33 323.1 80.5 93 381.3 95.1 53 449.5 109.6 13 497.8 124.1 73 556.0 138.3 33 432.4 80.8 8 94 382.3 95.3 54 440.5 109.8 14 498.7 124.3 74 557.0 138.8 35 325.0 81.0 95 383.2 95.5 55 441.5 110.1 15 499.7 124.6 75 557.9 139.1 36 320.0 81.3 96 384.2 95.8 56 442.4 110.3 16 500.7 124.8 76 558.9 139.3 39 328.9 82.0 99 387.1 96.3 56 444.4 110.5 17 501.7 125.0 77 559.9 139.5 38 322.9 82.0 99 387.1 96.3 59 444.4 110.5 17 501.7 125.0 77 559.9 139.5 38 328.9 82.0 99 387.1 96.3 59 444.4 110.5 17 501.7 125.0 77 559.9 139.5 42 331.8 82.7 02 390.0 97.2 62 448.2 111.7 32 505.5 126.5 80 562.8 140.3 44 333.7 83.2 04 332.9 98.0 0 97.5 63 449.2 111.0 12.2 24 508.4 125.6 79 561.8 140.0 44 333.7 83.2 04 332.0 97.7 64 450.2 112.0 23 507.5 126.5 83 563.7 140.8 43 332.8 83.0 03 391.0 97.5 63 449.2 111.2 22 50 505.5 126.2 82 564.7 140.8 43 337.8 82.2 04 32.0 97.7 64 450.2 112.2 24 508.4 127.2 86 568.6 141.5 44 333.7 83.4 05 392.9 98.0 65 451.2 112.5 25 509.4 127.0 85 567.6 141.5 44 333.7 83.4 05 392.9 98.0 65 451.2 112.5 25 509.4 127.0 85 567.6 141.5 44 333.7 83.4 05 392.9 98.0 65 451.2 112.5 25 509.4 127.2 86 568.6 141.8 47 336.7 83.7 06 393.9 98.2 66 452.1 112.7 26 510.4 127.2 86 568.6 141.8 47 336.7 83.7 06 393.9 98.2 66 452.1 112.7 26 510.4 127.2 86 568.6 141.8 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 28 512.3 127.8 88 570.6 142.0 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 28 512.3 127.8 88 570.6 142.3 49 338.6 84.7 10 397.8 99.2 70 456.0 113.4 29 513.3 128.2 99 577.5 142.8 50 348.3 86.8 19 406.5 101.3 79 445.7 114.2 32 516.3 129.9 97 579.3 144.5 54 343.5 86.6 14 401.7 100.1 74 459.9 114.6 34 518.2	25	315.3			373.5	93.1			107.6					548.2	136.6
28 318.2 79.3 88 376.4 93.8 48 434.7 108.4 08 492.9 122.9 68 551.1 137.6 30 320.2 79.8 90 377.4 94.1 49 435.6 108.6 09 493.9 122.1 69 552.1 137.6 331 321.1 80.1 391 379.4 94.6 451 437.6 109.1 511 495.8 123.6 571 554.0 138.1 32 322.1 80.5 93 381.3 95.1 53 439.5 109.6 13 497.8 124.1 73 556.0 138.6 34 324.0 80.8 94 382.3 95.3 54 440.5 109.8 14 498.7 124.3 74 557.0 138.6 325.0 81.0 95 383.2 95.5 55 441.5 110.1 15 499.7 124.6 75 557.9 139.1 36 326.0 81.3 96 384.2 95.8 56 442.4 110.3 16 500.7 124.8 76 558.9 139.3 37 327.0 81.5 97 385.2 96.0 57 443.4 110.5 17 501.7 125.0 77 559.9 139.3 39 328.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.3 40 329.9 82.0 400 388.1 96.7 60 446.3 111.3 20 504.6 125.8 80 562.8 140.3 31.8 82.7 02 390.0 97.2 62 448.2 111.7 22 506.5 126.2 82 564.7 140.4 433.7 83.2 03.3 39.9 82.0 99.0 07.2 62 448.2 111.7 22 506.5 126.2 82 564.7 140.4 433.7 83.2 04 332.9 98.0 03 391.0 97.5 63 449.2 111.7 22 506.5 126.2 82 564.7 140.8 43 332.8 83.0 03 391.0 97.5 63 449.2 112.0 23 507.5 126.5 83 565.7 141.0 44 333.7 83.2 04 392.9 98.0 65 451.1 11.3 28 512.5 509.4 127.0 85 567.6 141.3 45 334.7 83.4 05 392.9 98.0 65 451.1 11.2 22 506.5 126.2 82 564.7 140.8 43 332.8 83.0 03 391.0 97.5 63 449.2 112.0 23 507.5 126.5 83 565.7 141.0 44 333.7 83.2 04 392.0 97.7 64 450.2 112.2 24 508.4 127.0 85 567.6 141.3 45 334.7 83.4 05 392.9 98.0 65 451.1 11.2 22 506.5 126.2 82 564.7 140.8 43 332.8 83.0 03 391.0 97.5 63 449.2 112.0 23 507.5 126.5 83 565.7 141.0 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 28 512.3 127.8 88 565.7 141.0 56 334.7 83.4 05 392.9 98.0 65 451.1 11.0 19.5 31.1 12.2 24 508.4 127.2 86 568.6 141.8 47 336.7 83.9 07 394.9 98.4 67 453.1 113.0 27 511.4 127.5 87 569.6 142.0 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 28 512.3 127.8 88 570.6 142.5 50 338.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 575.5 142.5 50 338.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 575.5 142.8 55 34 43.5 58.4 13 400.7 99.9 73 458.9 114.4 33 517.2 129.0 93 575.4 143.5 55 344.4 85.9 15 404.6 100.6 76 441.3	26											122.4			136.9
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32 322.1 80.3 92 380.3 94.8 52 438.5 109.3 12 496.8 123.8 72 555.0 138.3 33 323.1 80.5 93 381.3 95.1 53 439.5 109.6 13 497.8 124.1 73 556.0 138.6 34 324.0 80.8 94 382.3 95.3 54 440.5 109.8 14 498.7 124.3 74 557.0 138.8 35 325.0 81.0 95 383.2 95.5 55 441.5 110.1 15 499.7 124.6 75 557.9 139.1 36 326.0 81.3 96 384.2 95.8 56 442.4 110.3 16 500.7 124.8 76 558.9 139.3 37 327.0 81.5 97 385.2 96.0 57 443.4 110.5 17 501.7 125.0 77 559.9 139.5 38 327.9 81.7 98 386.1 96.3 58 444.4 110.8 18 502.6 125.0 77 559.9 139.5 38 327.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.0 40 329.9 82.2 400 338.1 96.7 60 446.3 111.3 20 504.6 125.8 80 562.8 140.3 341 330.8 82.7 02 390.0 97.2 62 448.2 111.7 22 506.5 126.2 82 564.7 140.8 43 332.8 83.0 03 391.0 97.5 63 449.2 112.0 23 507.5 126.0 581 563.8 140.3 43 332.8 83.7 06 392.9 98.2 66 452.1 112.7 22 506.5 126.2 82 564.7 141.3 45 334.7 83.4 05 392.9 98.4 67 453.1 113.0 27 511.4 127.2 86 567.6 141.5 46 335.7 83.7 06 392.9 98.4 67 453.1 113.0 27 511.4 127.5 87 569.6 142.0 48 337.6 84.2 08 395.8 98.2 66 452.1 112.7 26 510.4 127.2 86 567.6 141.5 49 338.6 84.4 09 396.8 98.9 69 455.0 113.7 29 513.3 128.0 89 571.5 142.5 50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 49 338.6 84.4 09 396.8 98.9 69 455.0 113.4 29 513.3 128.0 89 571.5 142.5 50 344.4 85.9 15 402.6 100.4 77 4459.9 114.6 34 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 77 4459.9 114.6 34 518.2 129.2 94 576.4 143.5 54 343.5 85.6 14 401.7 100.1 74 459.9 114.6 34 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.4 95 577.3 144.0 56 349.3 87.1 20 407.5 101.6 80 465.7 116.1 40 524.0 130.6 600 582.2 145.1 101.5 101.5 101.5 101.6 100.9 77 462.8 115.4 13.5 150.1 129.9 97 579.3 144.5 150 349.3 87.1 20 407.5 101.6 80 465.7 116.1 40 524.0 130.6 600 582.2 145.1								437.6			495.8	123.6	571		138.1
34 324. 0 80.8 94 382.3 95.3 54 440.5 109.8 14 498.7 124.3 74 557.0 138.8 35 325.0 81.0 95 383.2 95.5 55 441.5 110.1 15 499.7 124.6 75 557.9 139.1 36 326.0 81.3 96 384.2 95.8 56 442.4 110.3 16 500.7 124.8 76 558.9 139.3 37 327.0 81.5 97 385.2 96.0 57 443.4 110.5 17 501.7 125.0 77 559.9 139.5 38 327.9 81.7 98 386.1 96.3 58 444.4 110.8 18 502.6 125.3 78 560.9 139.5 39 328.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.0 40 329.9 82.2 400 388.1 96.7 60 446.3 111.3 20 504.6 125.8 80 562.8 140.3 341 330.8 82.5 401 389.1 97.0 461 447.3 111.5 521 505.5 126.0 581 563.8 140.5 42 331.8 82.7 02 390.0 97.2 62 448.2 111.7 22 506.5 126.0 581 563.8 140.5 44 333.7 83.2 04 392.0 97.7 64 450.2 112.0 23 507.5 126.5 83 566.7 141.0 44 333.7 83.2 04 392.0 97.7 64 450.2 112.2 24 508.4 126.8 84 566.7 141.3 45 334.7 83.4 05 392.9 98.0 65 451.2 112.5 25 509.4 127.0 85 567.6 141.3 45 334.7 83.9 07 394.9 98.4 67 453.1 113.0 027 511.4 127.2 86 568.6 141.8 47 336.7 83.9 07 394.9 98.4 67 453.1 113.0 027 511.4 127.5 87 569.6 142.0 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 28 512.3 127.8 88 570.6 142.3 49 338.6 84.4 09 396.8 98.9 69 455.0 113.4 29 513.3 128.0 89 571.5 142.5 50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.2 129.2 94 576.4 143.5 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.9 97 579.3 144.5 56 344.3 86.6 14 401.7 100.1 74 459.9 114.6 34 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.9 97 579.3 144.5 56 344.4 86.3 17 404.6 100.9 77 462.8 115.1 39 523.0 130.4 99 585.0 144.5 56 348.3 86.8 14 400.5 101.3 79 464.7 115.9 39 523.0 130.4 99 581.2 144.9 60 349.3 87.1 20 407.5 101.6 80 465.7 116.1 40 524.0 130.6 600 582.2 145.1	32	322.1		92				438.5				123.8	72		138. 3
35 325.0 81.0 95 383.2 95.5 55 441.5 110.1 15 499.7 124.6 75 557.9 139.1 36 326.0 81.3 96 384.2 95.8 56 442.4 110.3 16 500.7 124.8 76 558.9 139.3 37 327.0 81.5 97 385.2 96.0 57 443.4 110.5 17 501.7 125.0 77 559.9 139.5 38 327.9 81.7 98 386.1 96.3 58 444.4 110.8 18 502.6 125.3 78 560.9 139.8 39 328.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.0 40 329.9 82.2 400 388.1 96.7 60 446.3 111.3 20 504.6 125.8 80 562.8 140.3 341 330.8 82.5 401 389.1 97.0 461 447.3 111.5 521 505.5 126.0 581 563.8 140.5 42 331.8 82.7 02 390.0 97.2 62 448.2 111.7 22 506.5 126.0 581 563.8 140.5 44 333.7 83.2 04 392.0 97.5 63 449.2 112.0 23 507.5 126.5 83 565.7 141.0 44 333.7 83.2 04 392.0 97.7 64 450.2 112.2 24 508.4 126.8 84 566.7 141.3 45 334.7 83.4 05 392.9 98.0 65 451.2 112.5 25 509.4 127.0 85 567.6 141.5 46 335.7 83.9 07 394.9 98.2 66 452.1 112.7 26 510.4 127.2 86 568.6 141.8 47 336.7 83.9 07 394.9 98.4 67 453.1 113.0 27 511.4 127.5 87 569.6 142.0 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 22 513.3 128.0 89 571.5 142.5 50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 351 340.5 84.9 411 398.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 351 340.5 84.9 411 398.8 99.2 70 456.0 113.7 30 516.2 128.8 92 574.4 143.3 53 342.5 85.4 13 400.7 99.9 73 458.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 114 401.7 100.1 74 459.9 114.4 33 517.2 129.0 93 575.4 143.5 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.4 95 577.3 144.0 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 36 522.1 129.9 97 579.3 144.0 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 36 522.1 129.9 97 579.3 144.5 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 36 522.1 129.9 97 579.3 144.5 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 36 522.1 129.9 97 579.3 144.5 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 36 522.1 129.9 97 579.3 144.5 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 40 524.0 130.6 600 582.2 145.1	33	323.1			381.3			439.5		13	497.8		73		138.6
36 326.0 81.3 96 384.2 95.8 56 442.4 110.3 16 500.7 124.8 76 558.9 139.3 37 327.0 81.5 97 385.2 96.0 57 443.4 110.5 17 501.7 125.0 77 559.9 139.5 38 327.9 81.7 98 386.1 96.3 58 444.4 110.8 18 502.6 125.3 78 560.9 139.5 38 329.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.0 40 329.9 82.2 400 388.1 96.7 60 446.3 111.3 20 504.6 125.8 80 562.8 140.3 341 330.8 82.5 401 389.1 97.0 461 447.3 111.5 521 505.5 126.0 581 563.8 140.5 42 331.8 82.7 02 390.0 97.2 62 448.2 111.7 22 506.5 126.2 82 564.7 140.5 44 333.7 83.2 04 392.0 97.5 63 449.2 112.0 23 507.5 126.5 83 565.7 141.0 44 333.7 83.2 04 392.0 97.7 64 450.2 112.2 24 508.4 126.8 84 566.7 141.5 46 335.7 83.2 04 392.0 97.7 64 450.2 112.2 24 508.4 126.8 84 566.7 141.5 46 335.7 83.7 06 393.9 98.2 66 452.1 112.7 26 510.4 127.2 86 568.6 141.8 47 336.7 83.9 07 394.9 98.4 67 453.1 113.0 27 511.4 127.2 86 568.6 141.8 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 28 512.3 127.8 88 570.6 142.3 49 338.6 84.4 09 396.8 98.9 69 455.0 113.4 29 513.3 128.0 89 571.5 142.5 50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 351 340.5 84.9 411 398.8 99.4 471 457.0 113.9 531 515.3 128.5 591 573.5 143.0 52 341.5 85.1 12 399.7 99.7 7 462.8 115.4 23 516.2 128.8 92 574.4 143.3 53 342.5 85.4 13 400.7 99.9 73 458.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 114 401.7 100.1 74 459.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 114 401.7 100.1 74 459.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 114 401.7 100.1 74 459.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 114 401.7 100.1 74 459.9 114.9 35 519.1 129.4 95 577.3 144.0 56 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 518.2 129.2 94 576.4 143.8 55 344.4 86.3 17 404.6 100.9 77 462.8 115.4 37 521.1 129.9 97 579.3 144.5 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 40 524.0 130.6 600 582.2 144.9 60 349.3 87.1 20 407.5 101.6 80 465.7 116.1 40 524.0 130.6 600 582.2 145.1	34	324.0											74		138.8
37 327.0 81.5 97 385.2 96.0 57 443.4 110.5 17 501.7 125.0 77 559.9 139.5 38 327.9 81.7 98 386.1 96.3 58 444.4 110.8 18 502.6 125.3 78 560.9 139.8 39 328.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.0 40 329.9 82.2 400 388.1 96.7 60 446.3 111.3 20 504.6 125.8 80 562.8 140.3 341 330.8 82.5 401 389.1 97.0 461 447.3 111.5 521 505.5 126.0 581 563.8 140.5 42 331.8 82.7 02 390.0 97.2 62 448.2 111.7 22 506.5 126.2 82 564.7 140.8 43 332.8 83.0 03 391.0 97.5 63 449.2 112.0 23 507.5 126.5 83 565.7 141.0 44 333.7 83.2 04 392.0 97.7 64 450.2 112.2 24 508.4 126.8 84 566.7 141.3 45 334.7 83.4 05 392.9 98.0 65 451.2 112.5 25 509.4 127.0 85 567.6 141.5 46 335.7 83.7 06 393.9 98.2 66 452.1 112.7 26 510.4 127.2 86 568.6 141.8 47 336.7 83.9 07 394.9 98.4 67 453.1 113.0 27 511.4 127.2 86 568.6 141.8 49 338.6 84.4 09 396.8 98.9 69 455.0 113.4 29 513.3 128.0 89 571.5 142.5 50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.5 54 343.5 85.1 12 399.7 99.7 72 457.9 114.2 32 516.2 128.8 92 574.4 143.3 53 342.5 85.4 13 400.7 99.9 73 458.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 14 401.7 100.1 74 459.9 114.6 34 518.2 129.9 97 579.3 144.0 56 345.3 86.8 19 406.5 101.1 78 463.8 115.1 36 520.1 129.7 96 578.3 144.0 58 349.3 86.8 19 406.5 101.1 78 463.8 115.1 36 520.1 129.9 97 579.3 144.0 56 349.3 87.1 20 407.5 101.6 80 465.7 116.1 40 524.0 130.6 600 582.2 145.1	30 26	325. U											76		139.1
38 327.9 81.7 98 386.1 96.3 58 444.4 110.8 18 502.6 125.3 78 560.9 139.8 39 328.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.0 341 330.8 82.2 400 389.1 97.0 461 447.3 111.5 521 505.5 126.0 581 563.8 140.5 42 331.8 82.7 02 390.0 97.2 62 448.2 111.7 22 506.5 126.0 581 563.8 140.5 43 332.8 83.0 03 391.0 97.7 64 450.2 112.0 23 507.5 126.5 83 565.7 141.0 44 333.7 83.2 04 392.9 98.0 65 451.2 112.2 24 508.4 126.5 83	37	327 0			385 2			443 4	110.5				77		139.5
39 328.9 82.0 99 387.1 96.5 59 445.3 111.0 19 503.6 125.6 79 561.8 140.0 341 330.8 82.5 401 389.1 97.0 461 447.3 111.5 505.5 126.0 581 563.8 140.3 42 331.8 82.7 702 390.0 97.2 62 448.2 111.7 22 506.5 126.0 581 563.8 140.3 43 332.8 83.0 03 391.0 97.5 63 449.2 112.0 23 507.5 126.5 83 565.7 141.0 44 333.7 83.2 04 392.9 98.0 65 451.2 112.5 25 509.4 127.0 85 567.6 141.3 45 334.7 83.7 06 393.9 98.4 67 453.1 113.0 27 511.4 127.5 87 569.6 <	38										502.6		78		139.8
40 329.9 82.2 400 388.1 96.7 60 446.3 111.3 20 504.6 125.8 80 562.8 140.3 341 330.8 82.5 401 389.1 97.0 461 447.3 111.5 521 505.5 126.0 581 563.8 140.5 42 331.8 82.7 O2 390.0 97.2 62 448.2 111.7 22 506.5 126.2 82 564.7 140.8 43 332.8 83.0 03 391.0 97.7 64 450.2 112.2 24 508.4 126.5 83 565.7 141.0 44 333.7 83.2 04 392.9 98.0 65 451.2 112.2 24 508.4 126.8 84 566.7 141.3 45 334.7 83.4 05 392.9 98.0 65 451.2 112.2 25 509.4 127.0 85	39		82.0						111.0						140.0
42 331. 8 82. 7 02 390. 0 97. 2 62 448. 2 111. 7 22 506. 5 126. 2 82 564. 7 140. 8 43 332. 8 83. 0 03 391. 0 97. 7 64 450. 2 112. 0 23 507. 5 126. 5 83 565. 7 141. 0 44 333. 7 83. 2 04 392. 9 98. 0 65 451. 2 112. 5 25 509. 4 127. 0 85 567. 6 141. 5 46 335. 7 83. 7 06 393. 9 98. 2 66 452. 1 112. 7 26 510. 4 127. 2 86 568. 6 141. 8 47 336. 7 83. 9 07 394. 9 98. 4 67 453. 1 113. 0 27 511. 4 127. 5 86 568. 6 141. 8 47 336. 7 84. 2 08 395. 8 98. 7 68 454. 1 113. 0 27 511. 4 127. 5 88 570. 6 142. 0 48 337. 6 84. 7	40		82. 2	400		96.7	60	446.3		20		125.8	80	562. 8	140.3
43 332. 8 83. 0 03 391. 0 97. 5 63 449. 2 112. 0 23 507. 5 126. 5 83 565. 7 141. 0 44 333. 7 83. 2 04 392. 0 97. 7 64 450. 2 112. 2 24 508. 4 126. 8 84 566. 7 141. 3 45 334. 7 83. 4 05 392. 9 98. 0 65 451. 2 112. 5 26 509. 4 127. 0 85 567. 6 141. 5 46 335. 7 83. 7 06 393. 9 98. 2 66 452. 1 112. 5 26 510. 4 127. 2 86 568. 6 141. 5 48 337. 6 84. 2 08 395. 8 98. 7 68 454. 1 113. 2 28 512. 3 127. 8 88 570. 6 142. 0 48 336. 7 84. 4 09 396. 8 98. 9 69 455. 0 113. 4 29 513. 3 128. 0 89 571. 5 142. 5 50 339. 6 84. 7		330.8	82.5						111.5	521	505.5	126.0			140.5
44 333. 7 83. 2 04 392. 0 97. 7 64 450. 2 112. 2 24 508. 4 126. 8 84 566. 7 141. 3 46 333. 7 83. 4 05 392. 9 98. 0 65 451. 2 112. 5 25 509. 4 127. 0 85 567. 6 141. 5 46 335. 7 83. 9 06 393. 9 98. 2 66 452. 1 112. 7 26 510. 4 127. 2 86 568. 6 141. 8 47 336. 7 83. 9 07 394. 9 98. 4 67 453. 1 113. 0 27 511. 4 127. 5 87 569. 6 142. 0 48 337. 6 84. 2 08 395. 8 98. 7 68 454. 1 113. 2 28 512. 3 127. 8 88 570. 6 142. 3 49 338. 6 84. 4 10 397. 8 99. 2 70 456. 0 113. 7 30 514. 3 128. 0 90 572. 5 142. 8 351 340. 5 85. 1	42		82.7							22	506.5	126. 2			140.8
45 334. 7 83. 4 05 392. 9 98. 0 65 451. 2 112. 5 25 509. 4 127. 0 85 567. 6 141. 5 46 335. 7 83. 7 06 393. 9 98. 2 66 452. 1 112. 7 26 510. 4 127. 2 86 568. 6 141. 8 47 336. 7 83. 9 07 394. 9 98. 4 67 453. 1 113. 0 27 511. 4 127. 5 87 569. 6 142. 0 48 337. 6 84. 2 08 395. 8 98. 7 68 454. 1 113. 2 28 512. 3 127. 8 88 570. 6 142. 3 49 338. 6 84. 4 09 396. 8 98. 9 69 455. 0 113. 4 29 513. 3 128. 0 89 571. 5 142. 5 50 339. 6 84. 7 10 397. 8 99. 2 70 456. 0 113. 7 30 514. 3 128. 2 90 572. 5 142. 8 <td>43</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>112.0</td> <td>23</td> <td>507.5</td> <td></td> <td></td> <td></td> <td>141.0</td>	43								112.0	23	507.5				141.0
46 335.7 83.7 06 393.9 98.2 66 452.1 112.7 26 510.4 127.2 86 568.6 141.8 47 336.7 83.9 07 394.9 98.4 67 453.1 113.0 27 511.4 127.5 87 569.6 142.0 48 337.6 84.2 08 395.8 98.7 68 454.1 113.2 28 512.3 127.8 88 570.6 142.0 49 338.6 84.4 09 396.8 98.9 69 455.0 113.4 29 513.3 128.0 89 571.5 142.5 50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 351 340.5 84.9 411 398.8 99.4 471 457.0 113.9 531 515.3 128.5 591 573.5 143.0 52 341.5 85.1 12 399.7 72 457.9		333.7	83. 2						112.2		500.4				141.3
47 336. 7 83. 9 07 394. 9 98. 4 67 453. 1 113. 0 27 511. 4 127. 5 87 569. 6 142. 0 48 337. 6 84. 2 08 395. 8 98. 7 68 454. 1 113. 2 28 512. 3 127. 8 88 570. 6 142. 3 49 338. 6 84. 4 09 396. 8 98. 9 69 455. 0 113. 4 29 513. 3 128. 0 89 571. 5 142. 5 50 339. 6 84. 7 10 397. 8 99. 2 70 456. 0 113. 7 30 514. 3 128. 2 90 571. 5 142. 5 361 340. 5 84. 9 411 398. 8 99. 4 471 457. 0 113. 9 531 515. 3 128. 5 591 573. 5 143. 0 52 341. 5 85. 1 12 399. 7 72 457. 9 114. 2 32 516. 2 128. 8 92 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>112.0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>141.0</td>									112.0						141.0
48 337. 6 84. 2 08 395. 8 98. 7 68 454. 1 113. 2 28 512. 3 127. 8 88 570. 6 142. 3 49 338. 6 84. 4 09 396. 8 98. 9 69 455. 0 113. 4 29 513. 3 128. 0 89 571. 5 142. 5 50 339. 6 84. 7 10 397. 8 99. 2 70 456. 0 113. 7 30 514. 3 128. 2 90 572. 5 142. 8 351 340. 5 84. 9 411 398. 8 99. 4 471 457. 0 113. 9 531 515. 3 128. 5 591 573. 5 143. 0 52 341. 5 85. 1 12 399. 7 99. 7 72 457. 9 114. 4 23 516. 2 128. 8 92 574. 4 143. 0 54 343. 5 85. 6 14 401. 7 100. 1 74 459. 9 114. 4 33 517. 2 129. 0	47								113.0						142.0
49 338.6 84.4 09 396.8 98.9 69 455.0 113.4 29 513.3 128.0 89 571.5 142.5 351 340.5 84.9 411 398.8 99.4 471 457.0 113.7 30 514.3 128.2 90 572.5 142.8 52 341.5 85.1 12 399.7 99.9 7 72 457.9 114.2 32 516.2 128.8 92 574.4 143.0 53 342.5 85.4 13 400.7 99.9 73 458.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 14 401.7 100.1 74 459.9 114.6 34 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.4 95	48		84. 2								512.3	127.8			142.3
50 339.6 84.7 10 397.8 99.2 70 456.0 113.7 30 514.3 128.2 90 572.5 142.8 351 340.5 84.9 411 398.8 99.4 471 457.0 113.9 531 515.3 128.5 591 573.5 143.0 52 341.5 85.1 12 399.7 99.7 72 457.9 114.2 32 516.2 128.8 92 574.4 143.3 53 342.5 85.4 13 400.7 99.9 73 458.9 114.4 33 517.2 129.0 93 575.4 143.8 54 343.5 85.6 14 401.7 100.1 74 459.9 114.6 34 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.4 95 <td< td=""><td>49</td><td>338.6</td><td>84.4</td><td>09</td><td>396.8</td><td>98.9</td><td>69</td><td>455.0</td><td>113.4</td><td>29</td><td>513. 3</td><td>128.0</td><td>89</td><td>571.5</td><td>142.5</td></td<>	49	338.6	84.4	09	396.8	98.9	69	455.0	113.4	29	513. 3	128.0	89	571.5	142.5
52 341.5 85.1 12 399.7 99.7 72 457.9 114.2 32 516.2 128.8 92 574.4 143.3 53 342.5 85.4 13 400.7 99.9 73 458.9 114.4 33 517.2 129.0 93 575.4 143.5 54 343.5 85.6 14 401.7 100.1 74 459.9 114.6 34 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.2 94 576.4 143.8 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 36 520.1 129.4 95 577.3 144.0 57 346.4 86.3 17 404.6 100.9 77 462.8 115.4 37 521.1 129.9 97 57											514.3		90		142.8
53 342. 5 85. 4 13 400. 7 99. 9 73 458. 9 114. 4 33 517. 2 129. 0 93 575. 4 143. 5 54 343. 5 85. 6 14 401. 7 100. 1 74 459. 9 114. 6 34 518. 2 129. 2 94 576. 4 143. 8 55 344. 4 85. 9 15 402. 6 100. 4 75 460. 9 114. 6 34 518. 2 129. 2 94 576. 4 143. 8 56 345. 4 86. 1 16 403. 6 100. 6 76 461. 8 115. 1 36 520. 1 129. 7 96 578. 3 144. 5 57 346. 4 86. 3 17 404. 6 100. 9 77 462. 8 115. 4 37 521. 1 129. 9 97 579. 3 144. 5 58 347. 3 86. 6 18 405. 5 101. 1 78 463. 8 115. 6 38 522. 1															
54 343.5 85.6 14 401.7 100.1 74 459.9 114.6 34 518.2 129.2 94 576.4 143.8 55 344.4 85.9 15 402.6 100.4 75 460.9 114.9 35 519.1 129.4 95 577.3 144.0 56 345.4 86.1 16 403.6 100.6 76 461.8 115.1 36 520.1 129.7 96 578.3 144.2 57 346.4 86.3 17 404.6 100.9 77 462.8 115.4 37 521.1 129.9 97 578.3 144.5 58 347.3 86.6 18 405.5 101.1 78 463.8 115.6 38 522.1 130.2 98 580.3 144.5 59 348.3 86.8 19 406.5 101.3 79 464.7 115.9 39 523.0 130.4 99					399.7	99.7		457.9	114.2			128. 8			
55 344. 4 85. 9 15 402. 6 100. 4 75 460. 9 114. 9 35 519. 1 129. 4 95 577. 3 144. 0 56 345. 4 86. 1 16 403. 6 100. 6 76 461. 8 115. 1 36 520. 1 129. 7 96 578. 3 144. 2 57 346. 4 86. 3 17 404. 6 100. 9 77 462. 8 115. 4 37 521. 1 129. 9 97 579. 3 144. 5 58 347. 3 86. 6 18 405. 5 101. 1 78 463. 8 115. 6 38 522. 1 130. 2 98 580. 3 144. 5 59 348. 3 86. 8 19 406. 5 101. 3 79 464. 7 115. 9 39 523. 0 130. 4 99 581. 2 144. 9 60 349. 3 87. 1 20 407. 5 101. 6 80 465. 7 116. 1 40 524. 0 <td>53</td> <td>342.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>129.0</td> <td></td> <td></td> <td></td>	53	342.5										129.0			
56 345. 4 86. 1 16 403. 6 100. 6 76 461. 8 115. 1 36 520. 1 129. 7 96 578. 3 144. 2 57 346. 4 86. 3 17 404. 6 100. 9 77 462. 8 115. 4 37 521. 1 129. 9 97 579. 3 144. 5 58 347. 3 86. 6 18 405. 5 101. 1 78 463. 8 115. 6 38 522. 1 130. 2 98 580. 3 144. 7 59 348. 3 86. 8 19 406. 5 101. 3 79 464. 7 115. 9 39 523. 0 130. 4 99 581. 2 144. 9 60 349. 3 87. 1 20 407. 5 101. 6 80 465. 7 116. 1 40 524. 0 130. 6 600 582. 2 145. 1 Dist. Dep. Lat. Dist. Dep.		344 4												577 9	145.8
57 346. 4 86. 3 17 404. 6 100. 9 77 462. 8 115. 4 37 521. 1 129. 9 97 579. 3 144. 5 58 347. 3 86. 6 18 405. 5 101. 1 78 463. 8 115. 6 38 522. 1 130. 2 98 580. 3 144. 7 59 348. 3 86. 8 19 406. 5 101. 3 79 464. 7 115. 9 39 523. 0 130. 4 99 581. 2 144. 9 60 349. 3 87. 1 20 407. 5 101. 6 80 465. 7 116. 1 40 524. 0 130. 6 600 582. 2 145. 1 Dist. Dep. Lat.									115.1			129 7		578.3	144.2
58 347. 3 86. 6 18 405. 5 101. 1 78 463. 8 115. 6 38 522. 1 130. 2 98 580. 3 144. 7 59 348. 3 86. 8 19 406. 5 101. 3 79 464. 7 115. 9 39 523. 0 130. 4 99 581. 2 144. 9 60 349. 3 87. 1 20 407. 5 101. 6 80 465. 7 116. 1 40 524. 0 130. 6 600 582. 2 145. 1 Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat.								462. 8			521. 1	129.9		579.3	
59 348. 3 86. 8 19 406. 5 101. 3 79 464. 7 115. 9 39 523. 0 130. 4 99 581. 2 144. 9 60 349. 3 87. 1 20 407. 5 101. 6 80 465. 7 116. 1 40 524. 0 130. 6 600 582. 2 145. 1 Dist. Dep. Lat.	58	347.3			405.5	101.1		463.8	115.6		522.1	130.2		580.3	144.7
Dist. Dep. Lat.							79	464.7			523.0	130.4	99	581. 2	
	60	349.3	87.1	20	407.5	101.6	80	465.7	116. 1	40	524.0	130.6	600	582. 2	145.1
	Dist	Dep.	Lat.	Dist.	Den.	Let	Dist	Den	Let	Dist.	Den	Let	Dist	Den	Let
		2 op.	25.00	2.50	Дор.	1		1	<u></u>		Дор.,	1,000	2400	Dop.	2200 00

76° (104°, 256°, 284°).

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TABLE 2.

Difference of Latitude and Departure for 15° (165°, 195°, 345°).

		<u>и</u>	meren	ice of La	antuae	and I	Departui	e for 1	9, (10	9-, 199-	, 345°)	•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.3	61	58. 9	15.8	121	116.9	31.3	181	174.8	46.8	241	232.8	62.4
$\hat{2}$	1.9	0.5	62	59. 9	16.0	22	117.8	31.6	82	175.8	47.1	42	233.8	62.6
3	2.9	0.8	63	60.9	16.3	23	118.8	31.8	83	176.8	47.4	43	234.7	62.9
4	3.9	1.0	64	61.8	16.6	24	119.8	32.1	84	177.7	47.6	44	235.7	63. 2
5	4.8	1.3	65	62.8	16.8	25	120. 7	32.4	85	178.7	47.9	45	236.7	63.4
6	5.8	1.6	66	63. 8 64. 7	17. 1 17. 3	$\begin{array}{c} 26 \\ 27 \end{array}$	121.7 122.7	32. 6 32. 9	86 87	179. 7 180. 6	48. 1 48. 4	46 47	237. 6 238. 6	63. 7 63. 9
7 8	6.8	$\begin{array}{c c} 1.8 \\ 2.1 \end{array}$	67 68	65.7	17.6	28	123. 6	33.1	88	181.6	48.7	48	239.5	64.2
9	8.7	2.3	69	66.6	17.9	29	124.6	33.4	89	182. 6	48. 9	49	240.5	64.4
10	9.7	2.6	70	67.6	18.1	30	125.6	33.6	90	183.5	49. 2	50	241.5	64.7
11	10.6	2.8	71	68.6	18.4	131	126.5	33.9	191	184.5	49.4	251	242.4	65.0
12	11.6	3.1	72	69. 5	18.6	32	127.5	34. 2	92	185. 5	49.7	52	243.4	65. 2
13	12.6	3.4	73	70.5	18.9	33	128.5	34.4	93	186. 4	50.0	53	244.4	65.5
14	13. 5	3.6	74	71.5	19. 2 19. 4	34	129. 4	34.7	94	187.4	50. 2	54	245.3	65.7
15	$14.5 \\ 15.5$	3. 9 4. 1	75 76	$72.4 \\ 73.4$	19.4	$\frac{35}{36}$	130. 4 131. 4	34. 9 35. 2	95 96	188. 4 189. 3	50.5 50.7	55 56	$246.3 \\ 247.3$	66. 0 66. 3
$\begin{bmatrix} 16 \\ 17 \end{bmatrix}$	16. 4	4. 4	77	74.4	19. 9	37	132.3	35. 5	97	190.3	51.0	57	248. 2	66.5
18	17.4	4.7	78	75. 3	20. 2	38	133. 3	35. 7	98	191.3	51. 2	58	249. 2	66.8
19	18.4	4.9	79	76.3	20.4	39	134.3	36.0	99	192. 2	51.5	59	250.2	67.0
20	19.3	5. 2	80	_77.3	20.7	40	135. 2	36.2	200	193.2	51.8	60	251.1	67.3
21	20.3	5.4	81	78. 2	21.0	141	136.2	36.5	201	194. 2	52.0	261	252.1	67.6
22	21.3	5.7	82	79. 2	21. 2	42	137.2	36.8	02	195.1	52.3	62	253.1	67.8
23	22. 2	6.0	83	80. 2	21.5	43	138.1	37.0	03	196.1	52. 5 52. 8	63	254.0	68.1
$\begin{array}{c c} 24 \\ 25 \end{array}$	23.2 24.1	6. 2 6. 5	84 85	81. 1 82. 1	21.7 22.0	44 45	139. 1 140. 1	37. 3 37. 5	04 05	197. 0 198. 0	53.1	64 65	255. 0 256. 0	68.3 68.6
$\frac{23}{26}$	25. 1	6. 7	86	83. 1	22.3	46	141.0	37.8	06	199.0	53. 3	66	256. 9	68.8
27	26. 1	7.0	87	84.0	22.5	$\overline{47}$	142.0	38.0	07	199.9	53.6	67	257. 9	69.1
28	27.0	7.2	88	85.0	22.8	48	143.0	38.3	08	200.9	53.8	68	258.9	69.4
29	28. 0	7.5	89	86.0	23.0	49	143. 9	38.6	09	201.9	54.1	69	259.8	69.6
30	29.0	7.8	90	86. 9	23.3	50	144.9	38.8	10	202.8	54.4	70	260.8	69.9
31	29. 9	8.0	91	87.9	23.6	151	145.9	39.1	211	203. 8	54.6	271	261.8	70.1
32 33	30.9 31.9	8.3	92 93	88. 9 89. 8	23. 8 24. 1	$\frac{52}{53}$	146. 8 147. 8	39. 3 39. 6	12 13	204. 8 205. 7	54. 9 55. 1	72 73	262. 7 263. 7	70. 4 70. 7
34	32.8	8. 5 8. 8	94	90.8	24. 1	54	148.8	39. 9	14	206.7	55. 4	74	264.7	70. 9
35	33. 8	9.1	95	91.8	24.6	55	149.7	40.1	15	207.7	55.6	75	265.6	71. 2
36	34.8	9.3	96	92.7	24.8	56	150.7	40.4	16	208.6	55.9	76	266.6	71.4
37	35.7	9.6	97	93.7	25.1	57	151.7	40.6	17	209.6	56.2	77	267.6	71.7
38	36.7	9.8	98	94.7	25.4	58	152.6	40.9	18	210.6	56.4	78	268.5	72.0
39 40	37.7	10.1	99	95.6	25. 6 25. 9	59 60	153.6	41.2	$\frac{19}{20}$	211.5	56.7	79	269. 5	72.2
41	$\frac{38.6}{39.6}$	$\frac{10.4}{10.6}$	$\frac{100}{101}$	$\frac{96.6}{97.6}$	$\frac{26.9}{26.1}$	161	$\frac{154.5}{155.5}$	$\frac{41.4}{41.7}$	$\frac{20}{221}$	212.5 213.5	$\frac{56.9}{57.2}$	$\frac{80}{281}$	$\frac{270.5}{271.4}$	$\frac{72.5}{72.7}$
42	40.6	10. 0	02	98.5	26. 4	62	156.5	41. 9	221	213.3	57.5	82	272.4	73.0
43	41.5	11.1	03	99.5	26.7	63	157. 4	42.2	23	215.4	57.7	83	273.4	73. 2
44	42.5	11.4	04	100.5	26.9	64	158. 4	42.4	$\overline{24}$	216.4	58.0	84	274.3	73.5
45	43.5	11.6	05	101.4	27.2	65	159.4	42.7	25	217.3	58.2	85	275.3	73.8
46	44.4	11.9	06	102.4	27.4	66	160.3	43.0	26	218.3	58.5	86	276.3	74.0
47 48	45. 4 46. 4	12.2	07 08	103.4	27. 7 28. 0	67 68	161.3	43. 2 43. 5	27 28	219. 3 220. 2	58.8	87	277.2 278.2	74.3
48	40. 4	12. 4 12. 7	08	104. 3 105. 3	28. 2	69	162.3 163.2	43. 7	28	220. 2	59. 0 59. 3	88 89	278. 2	74.5 74.8
50	48.3	12.9	10	106.3	28.5	70	164. 2	44.0	30	222. 2	59.5	90	280. 1	75.1
51	49.3	13. 2	111	107. 2	28.7	171	165. 2	44.3	231	223. 1	59.8	291	281.1	75.3
52	50.2	13.5	12	108. 2	29.0	72	166. 1	44.5	32	224.1	60.0	92	282.1	75.6
53	51.2	13.7	13	109.1	29.2	73	167.1	44.8	33	225.1	60.3	93	283.0	75.8
54	52.2	14.0	14	110.1	29.5	74	168.1	45.0	34	226.0	60.6	94	284.0	76.1
55 56	53.1	14.2	15	111.1	29.8	75 76	169.0	45.3	35	227.0	60.8	95 96	284.9	76.4
56 57	54. 1 55. 1	14. 5 14. 8	$\frac{16}{17}$	112. 0 113. 0	30. 0	76 77	170.0 171.0	45.6 45.8	36 37	228. 0 228. 9	$61.1 \\ 61.3$	96 97	285. 9 286. 9	76.6 76.9
58	56.0	15.0	18	114.0	30.5	78	171.9	46.1	38	229.9	61.6	98	287.8	77.1
59	57.0	15. 3	19	114.9	30.8	79	172.9	46.3	39	230. 9	61.9	99	288.8	77.4
60	58.0	15.5	20	115.9	31.1	80	173. 9	46.6	40	231.8	62.1	300	289.8	77.6
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						750 (1050 951	50 0050	21					

75° (105°, 255°, 285°).

TABLE 2.

Difference of Latitude and Departure for 15° (165°, 195°, 345°).

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				Differ	ence of	Latitud	le and	Depart	ure for	15° (1	165°, 195	5°, 345°	').		
I	ist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
18	301	290. 7	77.9	361	348. 7	93.4	421	406.6	109.0	481	464.6	124.5	541	522.6	140.0
	02	291.7	78. 2	62	349.6	93.7	22	407.6	109.2	82	465.6	124.8	42	523.5	140.3
	03	292.7	78.4	63	350.6	94.0		408.6	109.5	83	466.5	125.0	43	524. 5	140.5
	04	293.6	78. 7 78. 9	64 65	351.6	94.2		409.5 410.5	$\begin{vmatrix} 109.7 \\ 110.0 \end{vmatrix}$	84 85	467. 5 468. 5	125.3 125.6	44 45	525. 5 526. 4	140.8 141.1
	$\begin{array}{c} 05 \\ 06 \end{array}$	294. 6 295. 6	79.2	66	353.5	94. 7	26	411.5	110.0	86	469.4	125.8	46	527.4	141. 1
	07	296.5	79.5	67	354.5	95.0	27	412.4	110.5		470.4	126.1	47	528.4	141.6
1	08	297.5	79.7	68	355.4	95.3		413.4	110.8	88	471.4	126. 4	48	529.3	141.9
	09	298.4	80.0	69	356.4	95.5		414.4	111.0	89	472.3	126.6	49	530.3	142.1
	10	299.4	80.2	70	357.4	95.8		415.3	111.3	90	473.3	$\frac{126.9}{197.1}$	50	531.3	$\frac{142.4}{149.6}$
	$\begin{array}{c} 11 \\ 12 \end{array}$	300. 4 301. 3	80. 5 80. 8	$\frac{371}{72}$	358. 3 359. 3	96. 0 96. 3		416.3 417.3	111.6 111.8	$\frac{491}{92}$	475.2	127.1 127.4	$\frac{551}{52}$	532. 2 533. 2	142. 6 142. 9
	13	302.3	81.0	73	360.3	96.5		418. 2	112.1	93	476. 2	127.6	53	534. 2	143. 1
	14	303.3	81.3	74	361. 2	96.8	34	419.2	112.3	94	477.2	127.9	54	535.1	143.4
	15	304.2	81.5	75	362. 2	97.1	35	420.2	112.6	95	478.1	128.1	55	536. 1 537. 1	143.7
	16 17	305. 2 306. 2	81. 8 82. 1	76 77	363. 2 364. 1	97.3 97.6		421. 1 422. 1	112.9 113.1	96 97	479. 1 480. 1	128. 4 128. 6	56 57	538.0	$143.9 \\ 144.2$
1	18	307.1	82.3	78	365.1	97.8		423.1	113.4	98	481.0	128. 9	58	539.0	144. 4
	19	308. 1	82.6	79	366.1	98.1	39	424.0	113.6	99	482.0	129.1	59	540.0	144.7
	20_	309.1	82.8	80	367.0	98.4	40	425, 0	113.9	500	483.0	129.4	60	540.9	144.9
3	21	310.0	83.1	381	368.0	98.6	441	426.0	114.1	501	483. 9	129.7	561	541.9	145. 2
1	22 23	311.0 312.0	83. 3 83. 6	82 83	369. 0 369. 9	98. 9 99. 1	42 43	426. 9 427. 9	114. 4 114. 7	$02 \\ 03$	484. 9 485. 9	129.9 130.2	62 63	542. 9 543. 8	145. 4 145. 7
	$\frac{23}{24}$	312. 9	83. 9	84	370. 9	99.4		428.8	114.9	04	486.8	130. 4	64	544.8	146.0
	$\begin{bmatrix} 24 \\ 25 \end{bmatrix}$	313.9	84.1	85	371.9	99.6	45	429.8	115.2	$0\overline{5}$	487.8	130.7	65	545.8	146. 2
	26	314.9	84.4	86	372.8	99.9	46	430.8	115.4	06	488.8	131.0	66	546. 7	146.5
	27 28	315.8	84.6	87	373. 8 374. 8	100. 2 100. 4	47	431. 7 432. 7	115.7	07	489.7	$131.2 \\ 131.5$	67	547.7	146.7
	29	316. 8 317. 8	84. 9 85. 1	88 89	375.7	100. 4	48 49	433.7	$\begin{vmatrix} 116.0\\ 116.2 \end{vmatrix}$	08 09	490.7 491.7	131. 7	$\frac{68}{69}$	548.7 549.6	$147.0 \\ 147.2$
	30	318. 7	85.4	90	376.7	100.9	50	434.6	116.5	10	492.6	132.0	70	550.6	147.5
3	31	319.7	85.7	391	377.7	101.2	451	435.6	116.7	511	493.6	132.3	571	551.6	147.8
	32	320. 7	85.9	92	378.6	101.5	52	436.6	117.0	12	494.5	132.5	72	552.5	148.0
	33 34	$321.6 \\ 322.6$	86. 2 86. 5	93 94	379. 6 380. 6	101. 7 102. 0	53 54	$437.5 \\ 438.5$	117.3 117.5	13 14	495, 5 496, 5	132. 8 133. 0	73 74	553. 5 554. 4	148. 3 148. 5
	35	323.6	86.7	95	381.5	102. 0	55	439.5	117.8	15	497.4	133. 3	75	555.4	148.8
	36	324.5	87.0	96	382.5	102.5	56	440.4	118.0	16	498.4	133.5	76	556.4	149.0
	37	325.5	87.2	97	383.4	102.8	57	441.4	118.3	17	499.4	133.8	77	557.3	149.3
	38 39	$326.5 \\ 327.4$	87. 5 87. 7	98 99	384. 4 385. 4	103. 0 103. 3	58	442. 4 443. 3	118.5 118.8	18	500.3	$134.0 \\ 134.3$	78	558.3 559.3	149.5
	10	328.4	88.0	400	386.3	103. 5	59 60	444.3	119.1	19 20	502.3	134. 6	79 80	560. 2	$149.8 \\ 150.1$
-	41	329.4	88.3	401	387.3	103.8	461	445.3	119.3	521	503. 2	134.8	581	$\frac{561.2}{561.2}$	150.3
4	42	330.3	88.5	02	388.3	104.1	62	446.2	119.6	22	504.2	135.1	82	562. 2	150.6
	43	331.3	88.8	03	389. 2	104.3	63	447.2	119.8	23	505.2	135.3	83	563.1	150.8
	44 45	332. 3 333. 2	89. 0 89. 3	04 05	$390.2 \\ 391.2$	104.6	64	448. 2 449. 1	120.1	24	506.1	135. 6	84	564.1	151.1
	46	334. 2	89.6	06	391.2	104.8 105.1	65 66	449.1	120.4 120.6	25 26	507.1 ± 508.1	135. 9 136. 1	85 86	565. 1 566. 0	151. 4 151. 6
1	47	335. 2	89.8	07	393. 1	105.3	67	451.1	120. 9	27	509.0	136.4	87	567.0	151. 6 151. 9
	48	336.1	90.1	08	394.1	105.6	68	452.0	121.1	28	510.0	136.6	88	568.0	152, 2
	49 50	337.1	90.3	09	395.0	105.9	69	453.0	121.4	29	511.0	136. 9	89	568.9	152.4
	51	$\frac{338.1}{339.0}$	$\frac{90.6}{90.9}$	$\frac{10}{411}$	$\frac{396.0}{397.0}$	106. 1 106. 4	70 471	454. 0 454. 9	$\frac{121.7}{121.9}$	$\frac{30}{531}$	$\frac{511.9}{512.9}$	$\frac{137.2}{137.4}$	90	569. 9 570. 9	152.7
	$\frac{51}{52}$	340.0	91.1	12		106. 4	72	454. 9 455. 9	121.9 122.2	32	512.9	137. 7	591 92	570.9 571.8	153. 0 153. 2
	53	340.9	$91.\hat{4}$	13	398.9	106. 9	73	456. 9	122.4	33	514.8	137.9	93	572.8	153.5
	54	341.9	91.6	14	399.9	107. 2	74	457.8	122.7	34	515.8	138. 2	94	573.8	153. 7
	55 56	342. 9 343. 8	91.9	15	400.8	107.4	75	458.8	122.9	35	516.8	138.4	95	574.7	154.0
	57	344.8	$92.1 \\ 92.4$	16 17	401. 8 402. 8	107.7 107.9	76 77	459. 8 460. 7	123. 2 123. 5	$\frac{36}{37}$	517. 7 518. 7	138. 7 139. 0	96 97	575. 7 576. 7	154.2 154.5
	58	345.8	92.7	18	403.7	108. 2	78	461.7	123.7	38	519.7	139. 2	98	577.6	154. 8
	59	346.7	92.9	19	404.7	108.5	79	462.7	124.0	39	520.6	139.5	99	578.6	155.0
1	60	347.7	93.2	20	405. 7	108. 7	80	463.6	124.2	40	521.6	139. 7	600	579.5	155. 3
Di	st.	Dep.	Lav.	Dist.	Den	Let	Diet	Den	Tet	Dict	Den	T a f	Dict		Tot
-		Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						,	70 /1/	20 055	0.000						

75° (105°, 255°, 285°).

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TABLE 2.

Difference of Latitude and Departure for 16° (164°, 196°, 344°).

							- Part		- (.	, 100	, 011	,.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.3	61	58.6	16.8	121	116.3	33. 4	181	174.0	49.9	241	231.7	66.4
2	1.9	0.6	62	59.6	17.1	22	117.3	33.6	82	174.9	50.2	42	232.6	66.7
3	2.9	0.8	63	60.6	17.4	23	118.2	33.9	83	175.9	50.4	43	233.6	67.0
4	3.8	1.1	64	61.5	17.6	24	119.2	34.2	84	176.9	50.7	44	234. 5	67.3
5	4.8	1.4	65	62.5	17. 9 18. 2	$\frac{25}{26}$	120.2	34.5	85	177.8 178.8	51.0	45	235.5	67.5
6 7	5.8 6.7	1.7 1.9	66 67	63. 4 64. 4	18. 2	$\frac{26}{27}$	$121.1 \\ 122.1$	34. 7 35. 0	86 87	179.8	51. 3 51. 5	$\begin{array}{c} 46 \\ 47 \end{array}$	236. 5 237. 4	67. 8 68. 1
8	7.7	2. 2	68	65. 4	18.7	28	123. 0	35. 3	88	180.7	51.8	48	238.4	68.4
9	8.7	2.5	69	66. 3	19.0	29	124.0	35.6	89	181.7	52.1	49	239. 4	68.6
10	9.6	2.8	70	67. 3	19.3	30	125.0	35.8	90	182.6	52.4	50	240.3	68.9
11	10.6	3.0	71	68.2	19.6	131	125.9	36. 1	191	183.6	52.6	251	241.3	69.2
12	11.5	3.3	72	69.2	19.8	32	126.9	36.4	92	184.6	52.9	52	242.2	69.5
13	12.5	3.6	73	70.2	20.1	33	127.8	36.7	93	185.5	53. 2	53	243. 2	69.7
14	13. 5	3. 9	74	71.1	20.4	34	128.8	36.9	94	186.5	53.5	54	244. 2	70.0
15	14.4	4.1	75	72.1	20.7	35	129.8	37.2	95	187.4	53. 7	55	245.1	70.3
16	15.4	4.4	76	73. 1	20.9 21.2	36	130. 7 131. 7	37.5	96 97	188.4	54.0	56	$246.1 \\ 247.0$	70.6
17 18	16.3 17.3	4. 7 5. 0	77 78	75.0	21. 2	37 38	132.7	37. 8 38. 0	98	189. 4 190. 3	54. 3 54. 6	57 58	247.0	70.8 71.1
19	18.3	5. 2	79	75. 9	21.8	39	133.6	38.3	99	191.3	54.9	59	249.0	71.4
20	19. 2	5.5	80	76.9	22.1	40	134.6	38.6	200	192.3	55.1	60	249. 9	71.7
$\frac{-21}{21}$	$\frac{20.2}{20.2}$	5.8	81	77.9	22.3	141	135.5	38. 9	201	193. 2	55. 4	261	250.9	71.9
22	$\frac{21.1}{21.1}$	6.1	82	78.8	22.6	42	136. 5	39. 1	02	194.2	55. 7	62	251.9	72.2
23	22.1	6.3	83	79.8	22.9	43	137.5	39.4	03	195. 1	56.0	63	252.8	72.5
24	23.1	6.6	84	80.7	23. 2	44	138.4	39.7	04	196.1	56. 2	64	253.8	72.8
25	24.0	6.9	85	81.7	23. 4	45	139. 4	40.0	05	197.1	56.5	65	254.7	73.0
26	25.0	7.2	86	82.7	23.7	46	140.3	40.2	06	198.0	56.8	66	255. 7	73.3
27	26.0	7.4	87	83.6	24.0	47	141.3	40.5	07	199.0	57.1	67	256. 7	73.6
28 29	$26.9 \\ 27.9$	7. 7 8. 0	88 89	84. 6 85. 6	24. 3 24. 5	48 49	142.3 143.2	40.8	08 09	199. 9 200. 9	57. 3 57. 6	68 69	257.6 258.6	73.9 74.1
30	28.8	8.3	90	86.5	24.8	50	144. 2	41.3	10	201.9	57.9	70	259.5	74.4
31	29.8	8.5	$\frac{-90}{91}$	87.5	25.1	151	145. 2	41.6	$\frac{10}{211}$	202.8	58. 2	271	260.5	74.7
32	30. 8	8.8	$9\overline{2}$	88.4	25.4	52	146. 1	41.9	12	203.8	58.4	72	261.5	75.0
33	31.7	9.1	93	89.4	25.6	53	147.1	42. 2	13	204.7	58.7	73	262.4	75.2
34	32.7	9.4	94	90.4	25.9	54	148.0	42.4	14	205. 7	59.0	74	263.4	75.5
35	33.6	9.6	95	91.3	26. 2	55	149.0	42.7	15	206. 7	59.3	75	264.3	75.8
36	34. 6	9.9	96	92.3	26.5	56	150.0	43.0	16	207.6	59.5	76	265.3	76.1
37 38	35. 6 36. 5	10.2	97 98	93. 2 94. 2	26. 7 27. 0	57 58	150. 9 151. 9	43. 3 43. 6	17 18	208. 6 209. 6	59.8 60.1	77 78	266. 3 267. 2	76. 4 76. 6
39	37.5	10.5 10.7	99	95. 2	27. 3	59	151. 8	43.8	19	210.5	60. 4	79	268. 2	76. 9
40	38. 5	11.0	100	96. 1	27.6	60	153.8	44.1	20	211.5	60.6	80	269.2	77. 2
41	39.4	11.3	101	97.1	27.8	161	154.8	44. 4	221	212 4	60.9	281	270.1	77.5
42	40. 4	11.6	02	98.0	28. 1	62	155.7	44.7	22	213.4	61. 2	82	271.1	77.7
43	41.3	11.9	03	99.0	28.4	63	156.7	44.9	23	214.4	61.5	83	272.0	78.0
44	42.3	12.1	04	100.0	28.7	64	157.6	45. 2	24	215.3	61.7	84	273.0	78.3
45	43.3	12.4	05	100.9	28.9	65	158.6	45.5	25	216.3	62.0	85	274.0	78.6
46	44. 2	12.7	06	101.9	29.2	66	159.6	45.8	26	217.2	62.3	86	274.9	78.8
47 48	45. 2 46. 1	$13.0 \\ 13.2$	07 08	102.9 103.8	29.5 29.8	67 68	160. 5 161. 5	46. 0 46. 3	27 28	218. 2 219. 2	62. 6 62. 8	87 88	275. 9 276. 8	79. 1 79. 4
49	47.1	13. 5	09	103.8	30.0	69	162.5	46.6	29	220. 1	63. 1	89	277.8	79.7
50	48.1	13.8	10	105. 7	30. 3	70	163.4	46.9	30	221.1	63. 4	90	278.8	79.9
51	49.0	14.1	111	106.7	30.6	171	164.4	47.1	231	222.1	63.7	291	279.7	80. 2
52	50.0	14.3	12	107.7	30.9	72	165.3	47.4	32	223.0	63.9	92	280.7	80.5
53	50.9	14.6	13	108.6	31.1	73	166.3	47.7	33	224.0	64.2	93	281.6	80.8
54	51.9	14.9	14	109.6	31.4	74	167.3	48.0	34	224.9	64.5	94	282.6	81.0
55	52.9	15.2	15	110.5	31.7	75	168. 2	48.2	35	225.9	64.8	95	283.6	81.3
56	53. 8 54. 8	15.4	16 17	$111.5 \\ 112.5$	32.0	76	169.2	48.5 48.8	36 37	226. 9 227. 8	65. 1 65. 3	96 97	$284.5 \\ 285.5$	81. 6 81. 9
57 58	55.8	$15.7 \\ 16.0$	18	112. 5	$32.2 \\ 32.5$	77 78	170.1 171.1	49.1	38	228.8	65.6	98	286. 5	82.1
59	56.7	16. 3	19	114.4	32.8	79	172.1	49.3	39	229.7	65. 9	99	287. 4	82.4
60	57.7	16.5	20	115. 4	33. 1	80	173.0	49.6	40	230. 7	66.2	300	288. 4	82. 7
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
		·								1			'	

74° (106°, 254°, 286°).

TABLE 2.

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Difference of Latitude and Departure for 16° (164°, 196°, 344°).

				Diner.		,		Depart		. (, 101	, , ,	··		
1	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	201	000 0	00.0	901	347.0	00 =	401	404.7	116 0	481	462.4	132.5	541	520.1	140.1
ŀ	$\begin{array}{c} 301 \\ 02 \end{array}$	289.3 290.3	82.9	361 62	348.0	99.5	$\frac{421}{22}$	405.6	116.0 116.3		463.3	132. 8	42	520.1	149.1 149.4
ı	03	291. 2	83.5	63	348.9	100.0		406.6	116.6	83	464.3	133. 1	43	522.0	149.7
1	04	292. 2	83.8	64	349.9	100.3	24	407.6	116.8	84	465. 2	133.4	44	523.0	150.0
ı	05	293. 2	84.0	65	350.8	100.6	25	408.5	117.1	85	466. 2	133.6	45	523.9	150.2
и	06	294.1	84.3	66	351.8	100.8	26	409.5	117.4	86	467.2	133. 9		524.9	150.4
1	07	295.1	84.6	67	352. 8 353. 7	101.1	$\begin{array}{c} 27 \\ 28 \end{array}$	410.4	117.7 117.9	87 88	468.1	134. 2 134. 5	47	525.9 526.8	150.7 151.0
1	08 09	296.0 297.0	84. 9 85. 1	68 69	354.7	101.4 101.7	$\frac{20}{29}$	412.4	118.2	89	469. 1 470. 1	134. 8		527.8	151. 3
	10	298.0	85.4	70	355.6	101.9	30	413.3	118.5	90	471.0	135.0	50	528.7	151.6
9	311	298. 9	85.7	371	356.6	102. 2	431	414.3	118.8	491	472.0	135.3	551	529.7	151.9
	12	299.9	86.0	72	357. 6	102.5	32	415.2	119.0	92	472.9	135.6		530.6	152.2
н	13	300.9	86.2	73	358.5	$102.8 \\ 103.1$	33	416.2	119.3	93	473. 9 474. 9	135.9		531.6	152.5
1	14	301.8	86.5	74	359.5	103.1	34	417. 2	119.6	94	474.9	136. 2		532.6	152.8
	15	302.8	86.8	75	360. 4	103. 3	35	418.1	119.9	95	475.8	136.4		533.5	153.0
ı	16 17	303. 7 304. 7	87.1 87.3	76 77	361. 4 362. 4	103. 6 103. 9	36 37	419.1 420.0	$\begin{vmatrix} 120.1\\ 120.4 \end{vmatrix}$	96 97	476. 8 477. 7	136.7 137.0	56 57	534.5	153. 2 153. 5
	18	305. 7	87.6	78	363. 3	104. 2	38	421.0	120.7	98	478.7	137.3	58	536.4	153.8
	19	306.6	87. 9	79	364. 3	104.4	39	422.0	121.0	99	479.7	137.5	59	537.4	154.1
	20	307.6	88. 2	_ 80	365.3	104.7	40	422. 9	121.2	500	480.6	137.8	60	538.3	154.4
	21	308.5	88.4	381	366. 2	105.0		423. 9	121.5	501	481.6	138. 1	561	539.3	154.7
	22	309.5	88.7	82	367.2	105.3 105.5	42	424.9	121.8	02	482.6	138.3	62	540.3	154.9 155.2
ı	23	310.5	89.0	83	368.1	105.5	43 44	425. 8 426. 8	122. 1 122. 3	03 04	483. 5 484. 5	138.6 138.9	63	541. 2	155.2
ı	$\begin{bmatrix} 24 \\ 25 \end{bmatrix}$	$311.4 \\ 312.4$	89.3 89.5	84 85	369. 1 370. 1	105.8 106.1	45	427.7	122. 6	0^{4}	485.4	139. 2	$\frac{64}{65}$	542. 2 543. 1	155. 4 155. 7
L	$\frac{26}{26}$	313. 3	89.8	86	371.0	106.4	46	428. 7	122. 9	06	486.4	139. 4	66	544.1	156.0
1	27	314.3	90.1	87	372.0	106.6	47	429.7	123.2	07	487.3	139.7	67	545.1	156. 3
	28	315.3	90.4	88	372.9	106.9	48	430.6	123.4	08	488.3	140.0	68	546.0	156.6
	29	316. 2	90.6	89	373.9	107. 2	49	431.6	123.7	09	489.3	140.3	69	547.0	156. 9
	30	317.2	90.9	90	374.9	107.5	50	432.6	124.0	10	490. 2	140.6	70	547.9	157.1
3	$\frac{31}{32}$	318. 2 319. 1	$91.2 \\ 91.5$	391 92	375. 8 376. 8	107. 7 108. 0	451 52	433. 5 434. 5	$124.3 \\ 124.6$	$\frac{511}{12}$	491. 2 492. 1	140. 8 141. 1	$\frac{571}{72}$	548.9 549.8	157. 3 157. 6
	33	320. 1	91.8	93	377.8	108. 3	53	435.4	124.8	13	493.1	141.4	73	550.8	157.9
1	34	321.0	92.0	94	378.7	108.6	54	436. 4	125. 1	14	494.1	141.7	74	551.8	158. 2
1	35	322.0	92.3	95	379.7	108.8	55	437.4	125.4	15	495.0	141.9	75	552.7	158.4
	36	323.0	92.6	96	380.6	109.1	56	438.3	125.7	16	496.0	142.2	76	553.7	158.7
	37	323.9	92.9	97	381.6	109. 4 109. 7	57 58	439.3 440.2	125.9	17	496. 9	142.5	77	554.6	159.0
1	38 39	324. 9 325. 8	93. 1 93. 4	98 99	382.6 383.5	109.7	59 59	440. 2	$126.2 \\ 126.5$	18 19	497. 9 498. 9	$142.8 \\ 143.0$	78 79	555. 6 556. 5	159.3 159.5
	40	326.8	93.7	400	384.5	110. 2	60	442. 2	126.8	20	499.8	143.3	80	557.5	159.8
	41	327. 8	94.0	401	385. 4	110.5	461	443.1	127.0	521	500.8	143.6	581	558.4	160.1
	42	328. 7	94.2	02	386.4	110.8	62	444.1	127. 3	22	501.7	143. 9	82	559. 4	160. 4 160. 6
	43	329.7	94.5	03	387. 4	111.0	63	445.0	127.6	23	502. 7	144.1	83	560.4	160.6
	44	330.7	94.8	04	388.3	111.3	64	446.0	127.9	24	503.7	144.4	84	561.3	161.01
	45 46	331. 6 332. 6	95.1 95.3	05 06	389. 3 390. 2	$111.6 \\ 111.9$	65 66	447. 0 447. 9	$128.1 \\ 128.4$	$\frac{25}{26}$	504. 6 505. 6	144.7 145.0	85 86	562. 3 563. 2	161.3 161.6
	47	333.5	95.6	07	391. 2	111. 9	67	448.9	128.4 128.7	$\frac{20}{27}$	506.6	145. 0 145. 3	87	564.2	161.8
	48	334.5	95. 9	08	392.2	112.4	68	449.8	129.0	28	507.5	145.6	88	565. 2	162.1
	49	335.5	96.2	09	393.1	112.7	69	450.8	129.2	29	508.5	145.8	89	566.1	162.4
	50	336.4	96.4	_10_	394.1	113.0	_70	451.8	129.5	_ 30	509.4	146.1	90	567.1	162.7
	51	337.4	96.7	411	395. 1	113.3	471	452.7	129.8	531	510.4	146.4	591	568. 1	162.9
	52	338.3	97. 0	12		113.5		453.7	130. 1	32	511.4	146.7	92	569.0	163. 2
	53 54	339. 3 340. 3	97. 3 97. 5	13 14	397. 0 397. 9	113.8 114.1	73 74	454. 7 455. 6	130. 3 130. 6	$\begin{array}{c c} 33 \\ 34 \end{array}$	512.3 513.3	146. 9 147. 2	93 94	570. 0 571. 0	163. 5 163. 8
	55	341.2	97.8	15	398.9	114.4	75	456.6	130. 9	35	514.3	147. 5	95	571.9	164.0
	56	342.2	98.1	16	399.9	114.6	76	457.5	131. 2	36	515.2	147.8	96	572.9	164. 3
1	57	343.1	98.4	17	400.8	114.9	77	458.5	131.4	37	516.2	148.0	97	573.9	164.6
	58	344.1	98.6	18	401.8	115.2	78	459.5	131.7	38	517.2	148. 2	98	574.8	164. 9
	59 60	345. 1 346. 0	98. 9 99. 2	$\begin{array}{c c} 19 \\ 20 \\ \end{array}$	402. 7 403. 7	115. 5 115. 8	79 80	460. 4 461. 4	132. 0 132. 3	$\frac{39}{40}$	518.1	148.5	99	575.8	165.1
	·	010.0	00.2	20	100.7	110. 0	30	101.4	102.0	30	519. 1	148.8	600	576.8	165.4
D	ist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
-								2 °F.			2. cp.			Dep.	

74° (106°, 254°, 286°).

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TABLE 2.

Difference of Latitude and Departure for 17° (163°, 197°, 343°).

			Dinere	ince of 1	za i i i i i i i i i i i i i i i i i i i	and	Departu	16 101	(1	00 , 107	, 010)· 		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.3	61	58.3	17.8	121	115.7	35.4	181	173. 1	52.9	241	230.5	70.5
2	1.9	0.6	62	59.3	18.1	22	116.7	35.7	82	174.0	53.2	42	231.4	70.8
3	2.9	0.9	63	60.2	18.4	23	117.6	36.0	83	175.0	53.5	43	232.4	71.0
4	3.8	1.2	64	61. 2	18.7	24	118.6	36.3	84	176.0	53.8	44	233.3	71.3
5	4.8	1.5	65	62. 2	19.0	25	119.5	36.5	85	176.9	54.1	45	234. 3	71.6
6	5.7	1.8	66	63.1	19.3	26	120.5	36.8	86	177.9	54.4	46	235.3	71.9
7 8	6.7	$\begin{array}{c} 2.0 \\ 2.3 \end{array}$	67 68	64. 1 65. 0	19.6 19.9	27 28	121. 5 122. 4	37.1	87 88	$178.8 \\ 179.8$	54.7 55.0	47 48	236. 2 237. 2	72. 2 72. 5
9	7. 7 8. 6	2.6	69	66.0	20. 2	$\frac{28}{29}$	123. 4	37.4 37.7	89	180.7	55. 3	49	238.1	72.8
10	9.6	2. 9	70	66. 9	20.5	30	124. 3	38.0	90	181. 7	55.6	50	239.1	73.1
11	10.5	3.2	$\frac{-71}{71}$	67.9	20.8	131	125.3	38.3	191	182.7	55.8	251	240.0	73.4
12	11.5	3.5	$7\overline{2}$	68.9	21.1	32	126. 2	38.6	92	183.6	56.1	52	241.0	73.7
13	12.4	3.8	73	69.8	21.3	33	127.2	38.9	93	184.6	56.4	53	241.9	74.0
14	13.4	4.1	74	70.8	21.6	34	128.1	39. 2	94	185.5	56.7	54	242.9	74.3
15	14.3	4.4	75	71.7	21.9	35	129.1	39.5	95	186.5	57.0	55	243.9	74. 6 74. 8
16	15.3	4.7	76	72.7	22. 2	36	130.1	39.8	96	187.4	57.3	56	244.8	74.8
17 18	16.3 17.2	5. 0 5. 3	77 78	73. 6 74. 6	$22.5 \\ 22.8$	37 38	$131.0 \\ 132.0$	40. 1 40. 3	97 98	188. 4 189. 3	57. 6 57. 9	57 58	245. 8 246. 7	75.1 75.4
19	18. 2	5.6	79	75.5	23. 1	39	132.9	40.6	99	190.3	58. 2	59	247.7	75.7
20	19.1	5.8	80	76.5	23.4	40	133. 9	40.9	200	191.3	58.5	60	248.6	76.0
$\frac{-20}{21}$	20. 1	6.1	81	77.5	23.7	141	134.8	41.2	201	192.2	58.8	261	249.6	76.3
22	21.0	6.4	82	78.4	24.0	42	135.8	41.5	02	193. 2	59.1	62	250.6	76.6
23	22.0	6.7	83	79.4	24.3	43	136.8	41.8	03	194.1	59.4	63	251.5	76.9
24	23.0	7.0	84	80.3	24.6	44	137.7	42.1	04	195.1	59.6	64	252.5	77.2
25	23.9	7.3	85	81.3	24.9	45	138.7	42.4	05	196.0	59.9	65	253.4	77.5
26	24. 9 25. 8	7. 6 7. 9	86	82. 2 83. 2	25. 1 25. 4	46	139. 6 140. 6	42. 7 43. 0	06	197.0	60.2	66	254.4	77.8 78.1
27 28	26.8	8.2	87 88	84. 2	25. 7	47 48	141.5	43.3	07 08	198. 0 198. 9	60.5	67 68	255. 3 256. 3	78.4
29	27.7	8.5	89	85. 1	26.0	49	142.5	43.6	09	199.9	61.1	69	257. 2	78.6
30	28.7	8.8	90	86. 1	26.3	50	143.4	43.9	10	200.8	61. 4	70	258. 2	78.9
31	29.6	9.1	91	87.0	26.6	151	144.4	44.1	211	201.8	61.7	271	259.2	79.2
32	30.6	9.4	92	88.0	26.9	52	145. 4	44.4	12	202.7	62.0	72	260.1	79.5
33	31.6	9.6	93	88.9	27. 2	53	146.3	44.7	13	203.7	62.3	73	261.1	79.8
34	32.5	9.9	94	89.9	27.5	54	147.3	45.0	14	204.6	62.6	74	262.0	80. 1
35 36	33. 5 34. 4	10. 2 10. 5	95 96	90.8 91.8	27. 8 28. 1	55 56	148. 2 149. 2	45. 3 45. 6	15 16	205. 6 206. 6	62. 9 63. 2	75 76	263. 0 263. 9	80. 4 80. 7
37	35.4	10.8	97	92.8	28.4	57	150. 1	45. 9	17	207.5	63. 4	77	264. 9	81.0
38	36.3	11.1	98	93.7	28.7	58	151.1	46. 2	18	208.5	63. 7	78	265. 9	81.3
39	37.3	11.4	99	94.7	28.9	59	152. 1	46.5	19	209.4	64.0	79	266.8	81.6
40	38.3	11.7	100	95.6	29.2	60	153.0	46.8	20	210.4	64.3	80	267.8	81.9
41	39. 2	12.0	101	96.6	29.5	161	154.0	47.1	221	211.3	64.6	281	268.7	82. 2
42	40. 2	12.3	02	97.5	29.8	62	154.9	47.4	22	212.3 213.3	64.9	82	269.7	82. 4 82. 7
43	41.1	12.6	03	98.5	30.1	63	155.9	47.7	23	213.3	65. 2	83	270.6	82.7
44 45	42. 1 43. 0	12. 9 13. 2	04 05	99. 5 100. 4	30.4	$\frac{64}{65}$	156. 8 157. 8	47.9 48.2	$\begin{array}{c} 24 \\ 25 \end{array}$	214. 2 215. 2	65.5	84 85	271.6 272.5	83.0
46	43. 0	13. 2	06	100.4	31.0	66	157.8	48. 2	26 26	216. 2	65. 8 66. 1	86	272. 5	83. 3 83. 6
47	44.9	13. 7	07	102.3	31.3	67	159.7	48.8	$\frac{20}{27}$	217.1	66.4	87	274.5	83. 9
48	45.9	14.0	08	103.3	31.6	68	160.7	49.1	28	218.0	66.7	88	275.4	84. 2
49	46. 9	14.3	09	104.2	31.9	69	161.6	49.4	29	219.0	67.0	89	276.4	84.5
_50	47.8	14.6	10	105. 2	32. 2	70	162.6	49.7	30	220.0	67.2	90	277.3	84.8
51	48.8	14.9	111	106. 1	32.5	171	163.5	50.0	231	220.9	67.5	291	278.3	85. 1
52	49.7	15.2	12	107.1	32.7		164.5	50.3		221.9	67.8			85.4
53 54	50. 7 51. 6	15. 5 15. 8	13 14	108. 1 109. 0	33. 0 33. 3	$\begin{array}{c} 73 \\ 74 \end{array}$	165. 4 166. 4	50. 6 50. 9	33 34	222. 8 223. 8	68. 1 68. 4	93 94	280. 2 281. 2	85. 7 86. 0
55	52.6	16.1	15	110.0	33.6	75	167. 4	51.2	35	224. 7	68. 7	95	282.1	86. 2
56	53. 6	16.4	16	110.9	33. 9	76	168.3	51.5	36	225. 7	69.0	96	283. 1	86.5
57	54.5	16.7	17	111.9	34. 2	77	169.3	51.7	37	226. 6	69.3	97	284.0	86.8
58	55.5	17.0	18	112.8	34.5	78	170.2	52.0	38	227.6	69.6	98	285.0	87.1
59	56.4	17. 2	19	113.8	34.8	79	171.2	52. 3	39	228.6	69.9	99	285. 9	87.4
60	57.4	17.5	20	114.8	35.1	80	172.1	52.6	40	229.5	70. 2	300	286.9	87.7
Diet	Don	Let	Dist.	Don	Lot	Dist.	Don	T.c+	Diet	Don	Tet	Dist	Don	Tat
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						720 /1	079 959	0 0070	1					

73° (107°, 253°, 287°).

TABLE 2.

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Difference of Latitude and Departure for 17° (163°, 197°, 343°).

			Dine	ience o	Latit	ide an	u Depai	ture 10		(100 , 1	, , ,	, ,.	,	
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	287.8	88.0	361	345. 2	105. 5	421	402.6	123. 1	481	460.0	140.6	541	517.3	158. 2
02	288.8	88.3		346. 1	105.8	22	403. 5	123.4	82	460.9	140.9	$4\overline{2}$	518.3	158. 5
03	289.7	88.6		347.1	106. 1		404.5	123.7		461.9	141.2	43	519. 2	158.8
04	290.7	88.9		348.1	106. 4		405.4	124.0		462.8	141.5	44	520.2	159.
05	291.6	89. 2	65	349.0	106.7		406.4	124.3		463.8	141.8		521.2	159.3
06 07	292.6 293.5	89. 5 89. 8		350. 0 350. 9	107. 0 107. 3		407. 3	$\begin{vmatrix} 124.6 \\ 124.8 \end{vmatrix}$		464. 7 465. 7	$142.1 \\ 142.3$	46 47	522. 1 523. 1	159. 6
08	294.5	90.1		351.9	107.6		409.3	125. 1		466.7	142.6		524.0	160 9
09	295.5	90. 3		352.8	107. 9		410. 2	125. 4		467.6	142.9		525.0	159. 9 160. 2 160. 3
10	296.4	90.6		353. 8	108.2		411. 2	125.7		468.6	143. 2	50	526.0	160.8
311	297.4	90.9		354.8	108.5		412.1	126.0	491	469.5	143.5	551	526. 9	161.
12	298.3	91.2	72	355.7	108.8		413. 1	126.3		470.5	143.8	52	527. 9	161.4
13	299.3	91.5		356.7	109.1		414.0	126.6		471.4	144.1	53	528.8	161.
14	300.2	91.8		357.6	109.4		415.0	126.9		472.4	144.4	54	529.8	162.0
$\frac{15}{16}$	301. 2	92. 1 92. 4		358.6 359.5	109.0		416. 0	$\begin{vmatrix} 127.2\\ 127.5 \end{vmatrix}$	95 96	473. 4 474. 3	144. 7 145. 0	55 56	530.8 531.7	162. 3 162. 6
17	303. 1	92.7	77	360.5	110. 2		417. 9	127.8		475.3	145. 3	57	532. 7	162. 9
18	304.1	93.0		361.4	110.5		418.8	128.1	98	476.2	145.6	58	533.6	163.2
19	305.0	93.3		362.4	110.8	39	419.8	128.4	99	477.2	145.9	59	534.6	163. 5
20	306.0	93.6		363.4	111.1	40	420.7	128.6	500	478.1	146. 2	60	535.5	163.8
321	306. 9	93.9		364.3	111.4	441	421.7	128.9	501	479.1	146.5	561	536.5	164. 1
22	307.9	94.1	82	365. 3	111.7	42	422.7	129. 2	02	480.1	146.8	62	537.5	164. 4
$\frac{23}{24}$	308.8	94. 4 94. 7	83	366. 2 367. 2	$\begin{vmatrix} 112.0\\ 112.3 \end{vmatrix}$	43	423.6	129.5 129.8	$03 \\ 04$	481.0	$ 147.1 \\ 147.4 $	63	538.4 539.4	164.6
25	310.8	95.0	84 85	368. 1	112. 6	44 45	425.5	130.1	05	482. 0 482. 9	147. 7	64 65	540.3	164. 8 165. 1
26	311. 7	95.3		369.1	112.9	46	426.5	130. 4	06	483. 9	148.0	66	541. 3	165. 4
27	312. 7	95.6		370.1	113. 2	47	427.4	130.7	07	484.8	148.3	67	542.2	165. 7
28	313.6	95.9	88	371.0	113.4	48	428.4	131.0	08	485.8	148.6	68	543. 2	166.0
29	314.6	96.2	89	372.0	113. 7	49	429.3	131.3	09	486.7	148.9	69	544.1	166. 4
30	315.5	96.5	90	372.9	114.0	50	430.3	131.6	10	487.7	149.1	70	545.1	166.7
331	316. 5	96.8	391	373. 9	114.3	451	431.3	131. 9	511	488.7	149. 4	571	546.1	167. 0
32 33	317. 5 318. 4	97.1	92 93	374. 8 375. 8	114.6 114.9	52 53	432. 2 433. 2	132. 2 132. 4	12 13	489.6 490.6	149.7 150.0	72 73	547.0 548.0	167.2 167.5
34	319.4	97.7	94	376.7	115. 2	54	434.1	132. 7	14	491.5	150. 0	74	548.9	167.8
35	320.3	97.9	95	377. 7	115.5	55	435.1	133.0	$\hat{15}$	492.5	150. 5	75	549.9	168. 1
36	321.3	98. 2	96	378.7	115.8	56	436.0	133.3	16	493.4	150.8	76	550.8	168.4
37	322.2	98.5	97	379.6	116. 1	57	437.0	133.6	17	494.4	151.1	77	551.8	168.7
38	323. 2	98.8	98	380. 6	116.4	58	438.0	133.9	18	495.3	151.4	78	552. 7	169. 0 169. 3
39 40	324. 2 325. 1	99.1	$\frac{99}{400}$	381. 5 382. 5	$ 116.7 \\ 117.0 $	59 60	438. 9 439. 9	134. 2 134. 5	$\frac{19}{20}$	496.3 497.2	151.7 152.0	79 80	553. 7 554. 6	169. 3 169. 6
341	$\frac{326.1}{326.1}$	$\frac{-99.4}{99.7}$	401	383. 4	$\frac{117.0}{117.2}$	$\frac{60}{461}$	440.8	$\frac{134.3}{134.8}$	$\frac{20}{521}$	498.2	$\frac{152.0}{152.3}$	581	555.6	169. 9
42	327. 0	100.0	02	384.4	117.5	62	441.8	135. 1	$\frac{321}{22}$	499. 2	152.6	82	556.5	170. 2
43	328.0	100.3	03	385. 4	117.8	63	442.7	135.4	23	500.1	152. 9	83	557.5	170.5
44	328.9	100.6	04	386.3	118.1	64	443.7	135. 7	24	501.1	153. 2	84	558. 4	170.8
45	329.9	100.9	05	387.3	118.4	65	444.6	136.0	25	502.0	153.5	85	559.4	171.1
46	330.8	101.2	06	388. 2	118.7	66	445.6	136. 2	26	503.0	153.8	86	560. 4	171.3
47 48	331. 8 332. 8	101. 5 101. 8	07	389. 2 390. 1	119. 0 119. 3	67	446.6 447.5	$136.5 \\ 136.8$	27 28	503. 9 504. 9	154. 1 154. 4	87	561.3	171.6 171.9
49	333.7	101.8 102.0	08 09	391.1	119. 3	68 69	447.5	130.8	28 29	504.9	154. 4	88 89	562.3 563.2	171.9 172.2
50	334.7	102.3	10	392.0	119. 9	70	449.4	137. 4	30	506.8	155.0	90	564. 2	172.2 172.5
351	335.6	102.6	411	393.0	120. 2	471	450.4	$\frac{137.7}{137.7}$	531		155.3	591	565.1	172.8
$5\hat{2}$		102.9		394. 0	120.5			138.0			155.6	92	566.1	173.1
53	337.5	[103.2]	13	394. 9	120.8	73	452.3	138.3	33	509.7	155.9	93	567.1	173.4
54	338. 5	103.5	14	395.9	121.0	74	45 3. 3	138.6	34	510.6	156.2	94	568.0	173.7
55	339.5	103.8	15	396.8	121.3	75	454. 2	138.9	35	511.6	156.5	95	569.0	174.0
56 57	340. 4 341. 4	104. 1 104. 4	16 17	397. 8 398. 7	$121.6 \\ 121.9$	76	455. 2 456. 1	139. 2 139. 5	36 37	512.6 513.5	156. 8 157. 1	96	569. 9 570. 9	174.3
58	342.3	104. 7	18	399.7	121.9 122.2	77 78	457.1	139. 8	38	514.5	157. 3	97 98	571.8	174.6 174.9
59	343. 3	105.0	19	400.7	122. 5	79	458.0	140.0	39	515.4	157. 6	99	572.8	175. 2
60	344.2	105.3	20	401.6	122.8	80	459.0	140.3	40	516.4	157. 9	600	573.8	175. 4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
									<u></u>					

73° (107°, 253°, 287°).

TABLE 2.

Difference of Latitude and Departure for 18° (162°, 198°, 342°).

			ршеге	ence or 1	Lautuu	e anu	Departi	He for	10 (1	.02', 196	, 342)•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	1.0	0.3	61	58.0	18.9	121	115. 1	37.4	181	172.1	55.9	241	229. 2	74.5
$\bar{2}$	1.9	0.6	$6\overline{2}$	59.0	19.2	22	116.0	37.7	82	173.1	56. 2	42	230. 2	74.8
3	2.9	0.9	63	59.9	19.5	23	117.0	38.0	83	174.0	56.6	43	231.1	75.1
4	3.8	1.2	64	60.9	19.8	24	117.9	38.3	84	175.0	56.9	44	232.1	75.4
5	4.8	1.5	65	61.8	20.1	25	118.9	38.6	85	175.9	57.2	45	233.0	75. 7
6	5.7	1.9	66	62.8	20.4	26	119.8	38. 9	86	176.9	57. 5	46	234.0	76.0
7	6.7	2. 2 2. 5	67	63.7	$ \begin{array}{c c} 20.7 \\ 21.0 \end{array} $	$\frac{27}{28}$	120.8 121.7	39. 2 39. 6	87	177. 8 178. 8	57.8	47	234. 9 235. 9	76.3 76.6
8 9	7. 6 8. 6	$\frac{2.3}{2.8}$	68 69	64. 7 65. 6	21.0 21.3	$\frac{26}{29}$	121.7 122.7	39.9	88 89	179.7	58.1 58.4	48 49	$\begin{bmatrix} 255.9 \\ 236.8 \end{bmatrix}$	76.9
10	9.5	3.1	70	66.6	21.6	30	123.6	40. 2	90	180. 7	58.7	50	237.8	77.3
11	10.5	3.4	$\frac{-71}{71}$	67.5	$\frac{21.9}{21.9}$	131	124.6	40.5	191	181.7	59.0	251	238.7	77.6
$\tilde{12}$	11.4	3.7	$7\overline{2}$	68.5	22. 2	32	125.5	40.8	92	182.6	59.3	52	239.7	77.9
13	12.4	4.0	73	69.4	22.6	33	126.5	41.1	93	183.6	59.6	53	240.6	78.2
14	13. 3	4.3	74	70.4	22.9	34	127.4	41.4	94	184.5	59.9	54	241.6	78. 5 78. 8
15	14.3	4.6	75	71.3	23. 2	35	128.4	41.7	95	185.5	60.3	55	242.5	78.8
16	15. 2	4.9	76	72.3	23.5	36	129.3	42.0	96	186.4	60.6	56	243.5	79.1
17	16. 2	5.3	77	73.2	23.8	37	130.3	42.3 42.6	97	187.4	60. 9 61. 2	57 58	244.4 245.4	79. 4 79. 7
$\begin{array}{c c} 18 \\ 19 \end{array}$	17. 1 18. 1	5. 6 5. 9	78 79	74. 2 75. 1	24. 1 24. 4	38 39	131.2 132.2	43.0	98 99	188.3 189.3	61. 5	59	246.3	80.0
$\begin{vmatrix} 19\\20 \end{vmatrix}$	19. 0	6.2	80	76.1	24. 7	40	133. 1	43.3	200	190. 2	61.8	60	247.3	80.3
$\frac{-20}{21}$	$\frac{10.0}{20.0}$	$\frac{-6.5}{6.5}$	81	$\frac{-77.0}{77.0}$	25. 0	141	134.1	43.6	201	191. 2	62.1	261	248. 2	80.7
22	20. 9	6.8	82	78.0	25. 3	$4\overline{2}$	135. 1	43. 9	02	192. 1	62. 4	62	249. 2	81.0
23	21.9	7.1	83	78.9	25.6	43	136.0	44.2	03	193.1	62. 7	63	250.1	81.3
24	22.8	7.4	84	79.9	26.0	44	137.0	44.5	04	194.0	63.0	64	251.1	81.6
25	23.8	7.7	85	80.8	26.3	45	137. 9	44.8	05	195.0	63. 3	65	252.0	81.9
26	24. 7	8.0	86	81.8	26.6	46	138.9	45.1	06	195. 9	63. 7	66	253.0	82. 2 82. 5
27	25. 7	8.3	87	82.7	$\begin{bmatrix} 26.9 \\ 27.2 \end{bmatrix}$	47	139.8	45.4	07	196. 9 197. 8	64. 0 64. 3	67 68	253. 9 254. 9	82.5
$\begin{array}{c c} 28 \\ 29 \end{array}$	$26.6 \\ 27.6$	8.7 9.0	88 89	83. 7 84. 6	$\begin{bmatrix} 27.2 \\ 27.5 \end{bmatrix}$	48 49	140. 8 141. 7	45. 7 46. 0	08 09	198.8	64.6	69	255.8	82. 8 83. 1
30	28.5	9.3	90	85.6	$\frac{27.8}{27.8}$	50	142.7	46.4	10	199.7	64.9	70	256.8	83.4
31	29.5	9.6	91	86.5	28.1	151	143.6	46. 7	211	200.7	65. 2	271	257.7	83. 7
32	30. 4	9.9	92	87.5	28.4	52	144.6	47.0	12	201.6	65.5	72	258.7	84.1
33	31.4	10.2	93	88.4	28.7	53	145.5	47.3	13	202.6	65. 8	73	259.6	84.4
34	32. 3	10.5	94	89.4	29.0	54	146.5	47.6	14	203. 5	66.1	74	260.6	84.7
35	33.3	10.8	95	90.4	29.4	55	147.4	47.9	15	204.5	66.4	75	261.5	85. 0 85. 3
36	34. 2	11.1	96	91.3 92.3	29.7	56	148. 4 149. 3	$\begin{vmatrix} 48.2 \\ 48.5 \end{vmatrix}$	$\frac{16}{17}$	205. 4 206. 4	66.7	76 77	262. 5 263. 4	80.3
37 38	35. 2 36. 1	11. 4 11. 7	97 98	93. 2	30.0	57 58	150.3	48.8	18	207. 3	67. 4	78	264. 4	85. 6 85. 9
39	37. 1	12.1	99	94. 2	30.6	59	151. 2	49.1	19	208.3	67.7	79	265. 3	86. 2
40	38.0	12.4	100	95. 1	30.9	60	152. 2	49.4	20	209.2	68.0	80	266.3	86.5
41	39.0	12.7	101	96.1	31. 2	161	153.1	49.8	221	210. 2	68.3	281	267. 2	86.8
42	39. 9	13.0	02	97.0	31.5	62	154.1	50.1	22	211.1	68.6	82	268. 2	87.1
43	40.9	13.3	03	98.0	31.8	63	155.0	50.4	23	212. 1	68.9	83	269.1	87.5
44	41.8	13.6	04	98.9	32.1	64	156.0	50.7	24	213.0	69. 2	84	270. 1	87.8
45	42.8	13.9	05	99. 9	32.4	65	156. 9	51.0	25	214.0	69.5	85	271.1	88.1
46	43.7	14.2	06	100.8 101.8	32. 8 33. 1	66 67	157. 9 158. 8	51.3 51.6	$\frac{26}{27}$	214.9 215.9	69. 8 70. 1	86 87	272. 0 273. 0	88. 4 88. 7
47 48	44. 7 45. 7	14.5 14.8	07 08	101. 8	33. 4	68	159.8	51. 9	$\frac{27}{28}$	216.8	70. 1	88	273.9	89.0
49	46.6	15.1	09	103.7	33. 7	69	160.7	52.2	29	217. 8	70.8	89	274.9	89. 3
50	47.6	15.5	10	104.6	34.0	70	1617	52. 5	30	218.7	71. 1	90	275.8	89.6
51	48.5	15.8	111	105.6	34.3	171	162.6	52.8	231	219.7	71.4	291	276.8	89.9
52	49.5	16.1	12	106.5	34.6	72	163.6		32	220.6	71.7	92	277.7	90.2
53	50.4	16.4	13	107.5	34. 9	73	164.5	53.5	33	221.6	72.0	93	278.7	90.5
54	51.4	16.7	14	108.4	35.2	74	165.5	53.8	34	222.5 223.5	72.3 72.6	94	279.6	90.9
55	52.3	17.0	15	109.4	35. 5 35. 8	75 76	166. 4 167. 4	54. 1 54. 4	$\frac{35}{36}$	223. 5 224. 4	72. 6	95 96	280. 6 281. 5	$91.2 \\ 91.5$
56 57	53.3 54.2	17.3 17.6	$\frac{16}{17}$	110, 3 111, 3	36.2	77	168.3	54.7	37	225. 4	73. 2	97	282.5	91.8
58	55. 2	17.9	18	112. 2	36. 5	78	169.3	55. 0	38	226. 4	73.5	98	283. 4	92.1
59	56.1	18. 2	19	113. 2	36.8	79	170.2	55.3	39	227.3	73.9	99	284.4	92.4
60	57.1	18.5	20	114.1	37.1	80	171.2	55.6	40	228.3	74.2	300	285.3	92.7
														-
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
					,	700 (1	000 050	0 9000	1					

72° (108°, 252°, 288°).

TABLE 2.

Difference of Latitude and Departure for 18° (162° , 198° , 342°).

			Differ	ence of	Latitud	le and	Depart	ure for	19. (1	102 , 190	, 542)•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	286. 3	93.0	361	343.3	111.6	421	400.4	130.1	481	457.5	148.6	541	514.5	167.2
02	287. 2	93. 3	62	344.3	111.9	22	401.4	130.4	82	458.5	148.9	42	515.5	167.5
03	288.2	93. 7	63	345.2	112.2	23	402.3	130.7	83	459.4	149.3	43	516.4	167.9 168.2
04	289.1	94.0	64	346.2	112.5	24	403. 3	131.0	84 85	460. 4 461. 3	$149.6 \\ 149.9$	44 45	517. 4 518. 3	168. 5
05	290.1	94.3	65	347.1	112. 8 113. 1	$\frac{25}{26}$	404. 2 405. 2	$131.3 \\ 131.7$	86	462.3	150. 2	46	519.3	168.8
06 07	291.0 292.0	94.6 94.9	66 67	$348.1 \\ 349.0$	113. 4	27	406.1	132.0	87	463. 2	150. 5	47	520.2	169.1
08	292. 9	95. 2	68	350.0	113.7	28	407.1	132. 3	88	464.2	150.8	48	521. 2	169.4
09	293. 9	95.5	69	350.9	114.0	29	408.0	132.6	89	465.1	151.1	49	522.1	169.7
10	294.8	95.8	70	351.9	114.3	30	409.0	132.9	90	466.1	151.4	50	523.1	170.0
311	295.8	96. 1	371	352.9	114. 7	431	409.9	133. 2	491	467.0	151.7	551	524. 0 525. 0	170.3 170.6
12	296.7	96.4	72	353.8	115.0	32	410.9	133.5	92 93	468.0	152.0 152.3	$\frac{52}{53}$	525.0 525.9	170. 6
13	297. 7	96.7	73	354.8	115.3	33 34	411.8 412.8	133. 8 134. 1	94	468. 9 469. 8	152.6	54	526. 9	171. 2
14	298. 6 299. 6	97. 0 97. 4	74 75	355. 7 356. 7	115.6 115.9	35	413.7	134. 4	95	470.8	153.0	55	527.8	171.5
15 16	300.5	97. 7	76	357.6	116. 2	36	414.7	134. 7	96	471.7	153.3	56	528.8	171.8
17	301.5	98.0	77	358.6	116.5	37	415.6	135.1	97	472.7	153.6	57	529. 7	172.1
18	302.4	98.3	78	359.5	116.8	38	416.6	135.4	98	473.6	153. 9	58	530.7	172.4
19	303.4	98.6	79	360.5	117.1	39	417.5	135.7	99	474.6	154. 2 154. 5	59 60	531.6 532.6	172. 7 173. 0
20	304.3	98.9	80	361.4	117.4	40	418.5	$\frac{136.0}{100.0}$	500	$\frac{475.5}{476.5}$	154.8	561	533.5	173.3
321	305.3	99. 2	381	362. 4	117. 7 118. 1	$\begin{array}{c} 441 \\ 42 \end{array}$	419. 4 420. 4	136. 3 136. 6	$ \begin{array}{c} 501 \\ 02 \end{array} $	477.4	155.1	62	534.5	173.6
22 23	306. 2 307. 2	99. 5 99. 8	82 83	363. 3 364. 3	118. 4	43	421.3	136. 9	03	478.4	155. 4	63	535. 4	173.9
24	308. 2	100.1	84	365. 2	118.7	44	422.3	137. 2	04	479.3	155.7	64	536.4	174.2
25	309.1	100.4	85	366.2	119.0	45	423. 2	137, 5	05	480.3	156.1	65	537.3	174.6
26	310.1	100.7	86	367.1	119.3	46	424. 2	137.8	06	481.2	156.4	66	538.3	174.9
27	311.0	101.1	87	368. 1	119.6	47	425.1	138.1	07	482. 2 483. 2	156.7 157.0	67 68	539. 2 540. 2	175. 2 175. 5
28	312.0	101.4	88	369.0	119. 9 120. 2	48 49	$\begin{array}{c c} 426.1 \\ 427.0 \end{array}$	138. 4 138. 8	08 09	484.1	157.3	69	541.1	175.8
29 30	312.9 313.9	101.7 102.0	89 90	370. 0 370. 9	120. 2	50	428.0	139.1	10	485. 1	157.6	70	542.1	176.1
331	314.8	$\frac{102.0}{102.3}$	391	371. 9	120.8	451	428. 9	139. 4	511	486.0	157.9	571	543.0	176.4
32	315.8	102.6	92	372.8	121.1	52	429.9	139. 7	12	487.0	158. 2	72	544.0	176.7
33	316.7	102.9	93	373.8	121.5	53	430.8	140.0	13	487.9	158.5	73	544.9	177.0
34	317.7	103.2	94	374.7	121.8	54	431.8	140.3	14	488.9	158.8	74 75	545. 9 546. 8	$\begin{vmatrix} 177.3 \\ 177.6 \end{vmatrix}$
35	318.6	103.5	95	375.7	122.1	55	432.7 433.7	$ 140.6 \\ 140.0 $	$\begin{array}{c} 15 \\ 16 \end{array}$	489.8 490.8	159. 1 159. 4	76	547.8	178.0
36 37	319.6 320.5	103.8 104.1	96 97	376.6 377.6	122.4 122.7	56 57	434.6	141. 2	17	491.7	159. 7	77	548.7	178.3
38	$320.5 \\ 321.5$	104. 1	98	378.5	123.0	58	435.6	141.5	-18	492.7	160.0	78	549.7	178.6
39	322.4	104.8	99	379.5	123. 3	59	436.5	141.8	19	493.6	160.3	79	550.6	178.9
40	323. 4	105.1	400	380.4	123.6	60	437.5	142. 2	20	494.6	160.7	80	551.6	179.2
341	324.3	105.4	401	381.4	123.9	461	438.4	142.5	521	495.5	161.0	581	552.5	179.5
42	325.3	105.7	02	382.3	124. 2	62	439.4	142.8	22	496, 5	161. 3 161. 6	82 83	553.5 554.4	179.8 180.1
43	$326.2 \\ 327.2$	106. 0 106. 3	03 04	383.3 384.2	$\begin{vmatrix} 124.5 \\ 124.9 \end{vmatrix}$	63	440.3	$\begin{vmatrix} 143.1 \\ 143.4 \end{vmatrix}$	$\frac{23}{24}$	497.4	161. 9	84	555.4	180. 4
44 45	$327.2 \\ 328.1$	106. 6	05	385. 2	125. 2	65	442.2	143.7	25	499. 3	162. 2	85	556.3	180.7
46	329.1	106. 9	06	386.1	125.5	66	443. 2	144.0	26	500.3	162.5	86	557.3	181.1
47	330.0	107.2	07	387.1	125.8	67	444.2	144.3		501.2	162. 9	87	558.2	181.4
48	331.0	107.5	08	388.0	126.1	68	445.1	144.6	28	502. 2	163. 2	88	559. 2	181.7
49	331. 9	107. 9	09	389.0	126.4		446.1	144.9	$\frac{29}{30}$	503.1	163. 5 163. 8	89 90	560. 1 561. 1	182. 0 182. 3
50	332.9	$\frac{108.2}{1000.5}$	10	389.9	126.7	70	447.0	145.2	531	504.1	164. 1	591	562.0	182.7
351	333. 8 334. 8	108. 5 108. 8	411 12	390. 9 391. 8	$127.0 \\ 127.3$	$\begin{array}{c} 471 \\ 72 \end{array}$	448. 0 448. 9	145.6 145.9		506. 0	164. 4		563.0	183.0
52 53	335. 7	109.1	13	392.8	127.6	73	449.9	146. 2	33	506.9	164. 7	93	563. 9	183.3
54	336.7	109. 4	14	393.7	127.9	74	450.8	146.5	34	507.9	165.0	94	564.9	183.6
55	337.6	109.7	15	394.7	128.3	75	451.8	146.8		508.8	165.3	95	565.8	183.9
56	338.6	110.0	16	395.6	128.6	76	452.7	147.1	36	509.8	165.6	96	566.8	184. 2 184. 5
57	339.5	110.3	17	396.6	128.9	77 78	453. 7 454. 6	$\begin{vmatrix} 147.4\\ 147.7 \end{vmatrix}$	$\begin{array}{c} 37 \\ 38 \end{array}$	510. 7 511. 7	165. 9 166. 2	97 98	567. 7 568. 7	184.8
58 59	340. 5 341. 4	110.6 110.9	18 19	397. 5 398. 5	129. 2 129. 5	79	455.6	148.0		511.7	166. 5		569.6	185.1
60	342.4	111.3		399.5	129.8	80	456.5	148. 3		513.6	166.9		570.6	185.4
													- 1	
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
		<u>'</u>	•	·		700	(100 056	20.000) \					

72° (108, 252°, 288°).

TABLE 2.

Difference of Latitude and Departure for 19° (161°, 199°, 341°).

	1	1 -		1 -	1 -		- opuro	1		1 , 100			1	
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.3	61	57. 7	19.9	121	114.4	39.4	181	171.1	58.9	241	227.9	78.5
$\frac{2}{3}$	1.9	0.7	62	58.6	20.2	22	115.4	39.7	82	172.1	59.3	42	228.8	78.8
	2.8	1.0	63	59.6	20.5	23	116.3	40.0	83	173.0	59.6	43	229.8	79.1
4	3.8	1.3	64	60.5	20.8	24	117.2	40.4	84	174.0	59.9	44	230. 7	79.4
5 6	$\frac{4.7}{5.7}$	$\begin{vmatrix} 1.6 \\ 2.0 \end{vmatrix}$	65 66	61. 5 62. 4	21. 2 21. 5	$\frac{25}{26}$	118.2	40.7	85	174.9	60.2	45	231.7	79.8
7	6.6	$\frac{2.0}{2.3}$	67	63.3	21.8	$\begin{array}{c} 26 \\ 27 \end{array}$	119.1 120.1	41.0	86 87	175. 9 176. 8	60.6	46	232.6	80.1
8	7.6	2.6	68	64. 3	22 1	28	121.0	41.7	88	177.8	60.9	47 48	233. 5 234. 5	80. 4 80. 7
9	8.5	2.9	69	65. 2	$\begin{array}{c c} 22.1 \\ 22.5 \end{array}$	29	122.0	42.0	89	178.7	61.5	49	235. 4	81.1
10	9.5	3.3	70	66.2	22.8	30	122. 9	42.3	90	179.6	61.9	50	236. 4	81.4
11	10.4	3.6	71	67.1	23.1	131	123.9	42.6	191	180.6	62.2	251	237.3	81. 7
12	11.3	3.9	72	68. 1	23.4	32	124.8	43.0	92	181.5	62.5	$5\hat{2}$	238.3	82.0
13	12.3	4.2	73	69.0	23.8	33	125.8	43.3	93	182.5	62.8	53	239.2	82.4
14	13.2	4.6	74	70.0	24.1	34	126. 7	43.6	94	183.4	63.2	54	240.2	82.7
15	14.2	4.9	75	70.9	24.4	35	127.6	44.0	95	184.4	63.5	55	241.1	83.0
16	15.1	5.2	76	71.9	24.7	36	128.6	44.3	96	185.3	63.8	56	242.1	83.3
17 18	16. 1 17. 0	5. 5 5. 9	77	72.8	25.1	37	129.5	44.6	97	186.3	64.1	57	243.0	83.7
19	18.0	6.2	78 79	73.8 74.7	25. 4 25. 7	38 39	130.5	44. 9 45. 3	98 99	187. 2	64.5	58 50	243.9	84.0
20	18.9	6.5	80	75.6	26.0	40	131. 4 132. 4	45.6	200	188. 2 189. 1	64.8 65.1	59 60	244. 9 245. 8	84. 3 84. 6
$\frac{20}{21}$	19.9	6.8	81	76.6	26.4	141	133.3	45.9	201	190.0	65. 4	$\frac{60}{261}$	246.8	85.0
22	20.8	7.2	82	77.5	26.7	42	134.3	46. 2	02	190.0	65.8	62	247.7	85.3
23	21.7	7.5	83	78.5	27.0	43	135. 2	46.6	03	191.9	66.1	63	248.7	85.6
24	22.7	7.8	84	79.4	27.3	44	136.2	46.9	04	192.9	66.4	64	249.6	86.0
25	23.6	8.1	85	80.4	27.7	45	137.1	47.2	05	193.8	66.7	65	250.6	86.3
26	24.6	8.5	86	81. 3	28.0	46	138.0	47.5	06	194.8	67.1	66	251.5	86.6
27	25. 5	8.8	87	82. 3	28.3	47	139.0	47.9	07	195.7	67.4	67	252.5	86.9
28 29	$26.5 \\ 27.4$	$9.1 \\ 9.4$	88 89	83. 2 84. 2	28.7	48	139. 9	48.2	08	196.7	67.7	68	253.4	87.3
30	28.4	9.8	90	85.1	29. 0 29. 3	49 50	140. 9 141. 8	48. 5 48. 8	09 10	197. 6 198. 6	68. 0 68. 4	69 70	254.3 255.3	87.6 87.9
31	$\frac{29.3}{29.3}$	10.1	91	86.0	29.6	151	142.8	49.2	$\frac{10}{211}$	199.5	68.7	$\frac{70}{271}$	$\frac{256.3}{256.2}$	88.2
32	30.3	10.4	92	87. 0	30.0	52	143.7	49.5	12	200.4	69.0	$\frac{271}{72}$	257. 2	88.6
33	31.2	10.7	93	87.9	30. 3	53	144.7	49.8	13	201.4	69.3	73	258.1	88.9
34	32.1	11.1	94	88. 9	30.6	54	145.6	50.1	14	202.3	69.7	74	259.1	89.2
35	33.1	11.4	95	89.8	30. 9	55	146.6	50.5	15	203.3	70.0	75	260.0	89.5
36	34.0	11.7	96	90.8	31.3	56	147.5	50.8	16	204.2	70.3	76	261.0	89. 9
37 38	$35.0 \\ 35.9$	$12.0 \\ 12.4$	97	91.7	31.6	57	148.4	51.1	17	205. 2	70.6	77	261.9	90. 2
39	36.9	12.7	98 99	92.7 93.6	31.9 32.2	58 59	149. 4 150. 3	$51.4 \\ 51.8$	18 19	206. 1 207. 1	71.0 71.3	78 79	262. 9 263. 8	90.5
40	37.8	13.0	100	94.6	32.6	60	151.3	51.8 52.1	$\frac{19}{20}$	208.0	71.6	80	264.7	90.8 91.2
41	38.8	13.3	101	95.5	32.9	161	152. 2	52.4	221	209.0	72.0	281	265. 7	91.5
42	39. 7	13.7	02	96.4	33.2	62	153. 2	52.7	22	209.9	72.3	82	266.6	91.8
43	40.7	14.0	03	97.4	33.5	63	154.1	53.1	23	210.9	72.6	83	267.6	92.1
44	41.6	14.3	04	98.3	33.9	64	155.1	53.4	24	211.8	72.9	84	268.5	92.5
45	42.5	14.7	05	99.3	34.2	65	156.0	53.7	25	212.7	73.3	85	269.5	92.8
46	43.5	15.0	06	100.2	34.5	66	157.0	54.0	26	213.7	73.6	86	270.4	93.1
47 48	44. 4 45. 4	15. 3 15. 6	07 08	101. 2 102. 1	34. 8 35. 2	67	157. 9 158. 8	54. 4 54. 7	27	214.6	73.9	87	271.4	93.4
49	46.3	16.0	09	102. 1	35. 5	68 69	159.8	55.0	28 29	215. 6 216. 5	$\begin{array}{c} 74.2 \\ 74.6 \end{array}$	88 89	272.3 273.3	93.8 94.1
50	47.3	16.3	10	104.0	35.8	70	160.7	55.3	30	217.5	74.9	90	274. 2	94.4
51	48. 2	16.6	111	105.0	36.1	171	161.7	55.7	231	218.4	75. 2	291	275.1	94.7
52	49.2	16.9	12	105.9	36.5		162.6	56.0	32	219.4	75.5	92	276.1	95.1
53	50.1	17.3	13	106.8	36.8	73	163.6	56.3	33	220.3	75.9	93	277.0	95.4
54	51.1	17.6	14	107.8	37.1	74	164.5	56.6	34	221.3	76. 2	94	278.0	95.7
55	52.0	17.9	15	108.7	37.4	75	165.5	57.0	35	222. 2	76.5	95	278.9	96.0
56 57	52. 9 53. 9	18. 2 18. 6	16	109.7 110.6	$37.8 \\ 38.1$	76	166.4	57.3 57.6	36 37	$223.1 \\ 224.1$	76.8	96	279. 9 280. 8	96. 4 96. 7
58	54.8	18.9	17 18	111.6	38. 4	77 78	167. 4 168. 3	58.0	38	224. 1 225. 0	77. 2 77. 5	97 98	280.8	96. 7 97. 0
59	55. 8	19. 2	19	112.5	38.7	79	169. 2	58.3	39	226.0	77.8	99	282.7	97.3
60	56.7	19.5	20	113.5	39. 1	80	170.2	58.6	40	226. 9	78. 1	300	283.7	97. 7
Diet	Dom	Tet	Dist	- D.		Dist	- D.		Di i		T	Dist		
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
					*	710 (10	09° 251°	9890)					

71° (109°, 251°, 289°).

TABLE 2.

[Page 569

Difference of Latitude and Departure for 19° (161°, 199°, 341°).

Dist.	T - 4	1												
													Lat.	Dep.
301	284.6	98. 0	361	341.3	117.5	421	398. 1	137.0	481	454.8	156.6	541	511.5	176. 1
02	285.5	98. 3	62	342.3	117.8	22	399.0	137.4	82	455.7	156.9	42	512.4	176.4
03	286.5	98.6	63	343. 2	118. 2	23	400.0	137.7	83	456.7	157. 2	43	513.4	176.8
	287.4	99.0	64	344. 2 345. 1	118.5 118.8	24 25	400.9 401.8	138. 0 138. 4	84 85	457. 6 458. 6	157. 6 157. 9	44 45	514.3 515.3	177.1 177.4
05 06	288. 4 289. 3	99.3 99.6	65 66	346.1	119.1	26	401.8	138. 7	86	459.5	158. 2	46	516.2	177.7
	290. 3	99.9	67	347.0	119.5	27	403.7	139.0	87	460.5	158.5	47	517.2	178.1
08	291.2	100.3	68	348.0	119.8	28	404.7	139.3	88	461.4	158.9	48	518.1	178.4
	292.2	100.6	69	348.9	120.1	29	405.6	139.7	89	462.4	159. 2	49	519.1	178.7
	$\frac{293.1}{294.1}$	$\frac{100.9}{101.2}$	$\frac{70}{371}$	349.8	$\frac{ 120.4 }{ 120.8 }$	$\frac{30}{431}$	$\frac{406.6}{407.5}$	$\frac{140.0}{140.3}$	$\frac{90}{491}$	$\frac{463.3}{464.3}$	$\frac{159.5}{159.8}$	$\frac{50}{551}$	$\frac{520.0}{521.0}$	$\frac{179.0}{179.4}$
12	295. 0	101. 2	72	351. 7	121.1	32	408.5	140. 6	92	465. 2	160. 2	52	521. 9	179.7
13	295.9	101.9	73	352. 7	121.4	33	409.4	141.0	93	466.1	160.5	53	522.8	180.0
	296.9	102.2	74	353.6	121.7	34	410.4	141.3	94	467.1	160.8	54	523. 8	180.3
	297. 8 298. 8	$102.5 \\ 102.9$	75 76	354. 6 355. 5	122.1 122.4	35 36	411.3 412.2	$141.6 \\ 141.9$	95 96	468.0 469.0	$\begin{vmatrix} 161.1 \\ 161.5 \end{vmatrix}$	55 56	524.7 525.7	180. 7 181. 0
	299.7	103. 2	77	356.5	122.7	37	413. 2	142.3	97	469.9	161.8	57	526.6	181.3
	300.7	103. 5	78	357.4	123.0	38	414.1	142.6	98	470.9	162. 1	58	527.6	181.6
	301.6	103.8	79	358.4	123. 4	39	415.1	142.9	99	471.8	162.4	59	528.5	182.0
	302.6	104. 2	80	359.3	123.7	40	416.0	143. 2	500	472.8	162.8	60	529.5	182.3
	303. 5 304. 5	104. 5 104. 8	381 82	$360.2 \\ 361.2$	124.0 124.4	$\begin{array}{c c} 441 \\ 42 \end{array}$	417. 0 417. 9	143.6 143.9	$ \begin{array}{c c} 501 \\ 02 \end{array} $	473. 7 474. 7	163. 1 163. 4	$\frac{561}{62}$	530. 4 531. 4	182.6 182.9
	305. 4	104.8 105.1	83	362. 1	124.4 124.7	43	418.9	144. 2	03	475.6	163. 7	63	532.3	183.3
24	306.3	105.5	84	363.1	125.0	44	419.8.	144.5	04	476.5	164.1	64	533. 2	183.6
	307.3	105.8	85	364.0	125. 3	45	420.8	144. 9	05	477.5	164. 4	65	534. 2	183. 9
	308. 2 309. 2	106. 1 106. 4	86 87	$365.0 \\ 365.9$	125.7 126.0	46 47	421.7 422.6	145.2 145.5	06 07	478.4 479.4	164.7 165.0	66 67	535.1 536.1	184. 2 184. 6
	310. 1	106. 8	88	366. 9	126. 3	.48	423.6	145.8	08	480.3	165. 4	68	537.0	184.9
29	311.1	107.1	89	367.8	126.6	49	424.5	146. 2	09	481.2	165.7	69	538.0	185.2
	312.0	107.4	90	368.8	127.0	_50	425.5	146.5	10	482. 2	166.1	70	538.9	185.6
	313. 0 313. 9	107. 7 108. 1	391 92	369. 7 370. 6	127. 3 127. 6	$\begin{array}{c} 451 \\ 52 \end{array}$	426.4 427.4	146. 8 147. 1	$\frac{511}{12}$	483. 1 484. 1	166. 4 166. 7	571	539.9 540.8	185. 9 186. 2
	314.9	108. 1	93	371.6	127. 9	53	428.3	147.5	13	485.0	167. 0	72 73	541.7	186. 5
34	315.8	108.7	94	372.5	128.3	54	429.3	147.8	14	486.0	167.4	74	542.7	186.9
	316. 7	109.1	95	373.5	128.6	55	430. 2	148.1	15	486.9	167. 7	75	543.6	187.2
36 37	317. 7 318. 6	109. 4 109. 7	96 97	$374.4 \\ 375.4$	128.9 129.2	56 57	431. 2 432. 1	148. 4 148. 8	16 17	487. 9 488. 8	168. 0 168. 3	76 77	544.6 545.5	187. 5 187. 8
	319.6	110.0	98	376.3	129. 6	58	433. 0	149.1	18	489.7	168.7	78	546.5	188. 2
39	320.5	110.4	99	377.3	129.9	59	434.0	149.4	19	490.7	169.0	79	547.4	188.5
	321.5	110. 7	400	378.2	130. 2	60	434.9	149.7	20	491.6	169.3	80	548.4	188.8
	322. 4 323. 4	111. 0 111. 3	$\begin{array}{c c} 401 \\ 02 \end{array}$	379. 2 380. 1	130. 5 130. 9	$\begin{array}{c c} 461 \\ 62 \end{array}$	435. 9 436. 8	150. 1 150. 4	$\begin{array}{c} 521 \\ 22 \end{array}$	492.6 493.5	169.6	$\begin{array}{c} 581 \\ 82 \end{array}$	549.3 550.3	189. 1 189. 5
	324.3	111.3 111.7	03	381.0	131. 2	63	437.8	150. 4	23	493.5	170, 0 170. 3	83	551.2	189.8
44	325.3	112.0	04	382.0	131.5	64	438.7	151.0	24	495. 4	170.6	84	552. 2	190.1
	326.2	112.3	05	382.9	131.8	65	439.7	151.4	25	496.4	170.9	85	553.1	190.4
	327. 1 328. 1	112.6 113.0	06	383. 9 384. 8	132. 2 132. 5	66 67	440. 6 441. 6	151.7 152.0	26 27	497. 3 498. 3	$171.2 \\ 171.6$	86 87	554. 1 555. 0	190.8 191.1
	329. 0	113. 3	08	385.8	132. 8	68	442.5	152. 4	28	499. 2	171.0 171.9	88	555.9	191.4
49	330.0	113.6	09	386.7	133.1	69	443.4	152.7	29	500.1	172.2	89	556.9	191.7
	330.9	113.9	10	387.7	133.5	70	444.4	153.0	30	501.1	172.5	90	557.8	192.1
	331.9	114.3	411	388.6	133.8	471	445.3	153.3	531	502.0	172.9	591	558.8	192.4
	332. 8 333. 8	114.6 114.9	12 13	389. 6 390. 5	$\begin{vmatrix} 134.1 \\ 134.4 \end{vmatrix}$	72 73	446. 3 447. 2	153. 7 154. 0	32 33	503. 0 503. 9	173. 2 173. 5	$\frac{92}{93}$	559. 7 560. 7	192. 7 193. 0
54	334.7	115.2	14	391.4	134.8	74	448.2	154.3	34	504.9	173.8	94	561.6	193.4
55	335.7	115.6	15	392.4	135.1	75	449.1	154.6	35	505.8	174.2	95	562.6	193.7
56 57	336. 6 337. 5	$115.9 \\ 116.2$	16 17	393. 3 394. 3	135. 4 135. 7	76 77	450.1	155.0	36	506. 8 507. 7	174.5	96	563.5	194.0
58	338.5	116.2 116.5	18	394.3	136. 1	78	451. 0 452. 0	155. 3 155. 6	37 38	507. 7	174.8 175.1	97 98	564. 5 565. 4	194. 3 194. 7
59	339.4	116.9	19	396. 2	136. 4	79	452.9	155. 9	39	509.6	175.5	99	566. 4	195.0
	340. 4	117.2	20	397.1	136. 7	80	453.8	156. 3	40	510.6	175.8	600	567.3	195.3
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	***					71° (1	09°, 251	°, 289°).					

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TABLE 2.

 $^{\circ}$ Difference of Latitude and Departure for 20° (160°, 200°, 340°).

ļ				1		·	Copuro	110 101	- ()	.00 , 200	, 540	١٠		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.3	61	57.3	20.9	121	113. 7	41.4	181	170.1	61.9	241	226.5	82.4
2	1.9	0.7	62	58.3	21.2	22	114.6	41.7	82	171.0	62.2	42	227.4	82.8
3	2.8	1.0	63	59.2	21.5	23	115.6	42.1	83	172.0	62.6	43	228.3	83.1
· 4 5	3.8	$\begin{vmatrix} 1.4 \\ 1.7 \end{vmatrix}$	64 65	60.1	$21.9 \\ 22.2$	$\frac{24}{25}$	116.5	42.4	84	172.9	62.9	44	229.3	83.5
. 6	4.7 5.6	2.1	66	62. 0	22.6	$\frac{25}{26}$	117.5	$\begin{array}{ c c c c c }\hline 42.8 \\ 43.1 \end{array}$	85 86	173.8 174.8	63. 3 63. 6	45	230. 2 231. 2	83.8
7	6.6	$\frac{2.1}{2.4}$	67	63.0	22.9	27	119.3	43.4	87	175.7	64.0	46 47	232.1	84. 1 84. 5
8	7.5	2.7	68	63.9	23.3	28	120.3	43.8	88	176.7	64.3	48	233. 0	84.8
9	8.5	3.1	69	64.8	23.6	29	121. 2	44.1	89	177.6	64.6	49	234.0	85. 2
10_	9.4	3.4	70	65.8	23.9	30	122.2	44.5	90	178.5	65.0	50	234.9	85.5
11	10.3	3.8	71	66.7	24.3	131	123.1	44.8	191	179.5	65.3	251	235.9	85. 8
12	11.3	4.1	72	67.7	24.6	32	124.0	45.1	92	180.4	65.7	52	236.8	86. 2
13 14	$12.2 \\ 13.2$	4.4	73 74	68. 6 69. 5	$\begin{vmatrix} 25.0 \\ 25.3 \end{vmatrix}$	33 34	$125.0 \\ 125.9$	45. 5 45. 8	93	181. 4 182. 3	66.0	53	237.7	86.5
15	14.1	5.1	75	70.5	25.7	35	126.9	$\frac{46.8}{46.2}$	94 95	183. 2	66. 4 66. 7	54 55	238. 7 239. 6	86. 9 87. 2
16	15.0	5.5	76	71.4	26.0	36	127.8	46.5	96	184. 2	67.0	56	240.6	87.6
17	16.0	5.8	· 77	72.4	26.3	37	128.7	46. 9	97	185. 1	67.4	57	241.5	87. 9
18	16.9	6.2	78	73.3	26.7	38	129.7	47.2	98	186.1	67.7	58	242.4	88.2
19	17.9	6.5	79	74.2	27.0	39	130.6	47.5	99	187.0	68.1	59	243.4	88.6
20	18.8	6.8	80	75.2	27.4	40	131.6	47. 9	200	187.9	68.4	60	244.3	88. 9
21	19.7	$7.2 \\ 7.5$	81	76.1	27. 7 28. 0	141	132. 5 133. 4	48. 2	201	188.9	68.7	261	245.3	89.3
$\frac{22}{23}$	20.7 21.6	7.9	82 83	77. 1 78. 0	28. 4	42 43	134.4	48.6 48.9	$02 \\ 03$	189. 8 190. 8	69. 1 69. 4	62 63	246. 2 247. 1	89.6
$\frac{23}{24}$	22.6	8.2	84	78.9	28.7	44	135. 3	49.3	03	191.7	69.8	64	248. 1	90.0
25	23. 5	8.6	85	79.9	29.1	45	136.3	49.6	$0\hat{5}$	192.6	70.1	65	249.0	90.6
26	24.4	8.9	86	80.8	29.4	46	137.2	49.9	06	193.6	70.5	66	250.0	91.0
27	25.4	9.2	87	81.8	29.8	47	138.1	50.3	07	194.5	70.8	67	250.9	91.3
28	26.3	9. 6 9. 9	88	82.7	30.1	48	139.1	50.6	08	195.5	71.1	68	251.8	91.7
$\frac{29}{30}$	$27.3 \\ 28.2$	10.3	89 90	83. 6 84. 6	30.4	· 50	140. 0 140. 9	51.0	09 10	196.4 197.3	71.5	69 70	252. 8 253. 7	92. 0 92. 3
$-\frac{30}{31}$	$\frac{20.2}{29.1}$	10.6	$\frac{-30}{91}$	85. 5	31.1	151	141.9	$\frac{51.5}{51.6}$	$\frac{10}{211}$	198.3	$\frac{71.8}{72.2}$	$\frac{70}{271}$	$\frac{253.7}{254.7}$	$\frac{92.3}{92.7}$
32	30. 1	10.9	92	86. 5	31.5	$\frac{151}{52}$	142.8	52.0	12	199. 2	72.5	$\frac{271}{72}$	255.6	93.0
33	31.0	11.3	93	87.4	31.8	53	143.8	52.3	$\tilde{13}$	200. 2	72. 9	$7\overline{3}$	256.5	93.4
34	31.9	11.6	94	88. 3	32.1	54	144.7	52.7	14	201.1	73.2	74	257.5	93.7
35	32.9	12.0	95	89.3	32.5	55	145.7	53.0	15	202.0	73.5	75	258.4	94.1
36 37	33. 8 34. 8	$\begin{vmatrix} 12.3 \\ 12.7 \end{vmatrix}$	96 97	90.2 91.2	32. 8 33. 2	56	146.6	53.4	16	203.0	73.9	76	259. 4	94.4
38	35.7	13.0	98	92.1	33.5	57 58	$147.5 \\ 148.5$	53.7 54.0	17 18	203. 9 204. 9	$74.2 \\ 74.6$	77 78	260.3 261.2	94.7 95.1
39	36.6	13.3	99	93. 0	33. 9	59	149.4	54.4	19	205.8	74.9	79	262. 2	95.4
40	37.6	13.7	100	94.0	34. 2	60	150.4	54.7	20	206. 7	75. 2	80	263.1	95.8
41	38.5	14.0	101	94.9	34.5	161	151.3	55.1	221	207.7	75.6	281	264.1	96.1
42	39.5	14.4	02	95.8	34.9	62	152.2	55.4	22	208.6	75.9	82	265.0	96.4
43	40.4	14.7	03	96.8	35. 2	63	153. 2	55.7	23	209.6	76.3	83	265. 9	96.8
44 45	41.3 42.3	$15.0 \\ 15.4$	$04 \\ 05$	97. 7 98. 7	35. 6 35. 9	64 65	154.1 155.0	56. 1 56. 4	24 25	$210.5 \\ 211.4$	76.6	84 85	266.9	97.1
46	43. 2	15.7	06	99.6	36. 3	66	156.0	56.8	25 26	211.4 212.4	$77.0 \\ 77.3$	86	267. 8 268. 8	97. 5 97. 8
47	44. 2	16.1	07	100.5	36.6	67	156.9	57.1	$\frac{20}{27}$	213.3	77.6	87	269. 7	98.2
48	45.1	16.4	08	101.5	36.9	68	157.9	57.5	28	214.2	78.0	88	270.6	98.5
49	46.0	16.8	09	102. 4	37.3	69	158.8	57.8	29	215. 2	78.3	89	271.6	98.8
50	47.0	17.1	10	103.4	37.6	70	159.7	58.1	30	216. 1	78.7	90	272.5	99. 2
51	47. 9	17.4	111	104.3	38.0	171	160.7	58.5	231	217.1	79.0	291	273.5	99.5
52 53	48. 9 49. 8	17. 8 18. 1	$\begin{array}{c c} 12 \\ 13 \end{array}$	$105.2 \\ 106.2$	38. 3 38. 6	72 73	$161.6 \\ 162.6$	$58.8 \\ 59.2$	32 33	218. 0 218. 9	79.3 79.7	92 93	274.4 275.3	$99.9 \\ 100.2$
54	50.7	18.5	14	100. 2	39.0	74	162.5 163.5	59. 5	34	219.9	80.0	94	276.3	100. 2
55	51.7	18.8	15	108.1	39.3	75	164. 4	59.9	35	220.8	80.4	95	277.2	100.9
56	52.6	19.2	16	109.0	39.7	76	165.4	60.2	36	221.8	80.7	96	278.1	101.2
57	53.6	19.5	17	109.9	40.0	77	166.3	60.5	37	222.7	81.1	97	279.1	101.6
58 59	54. 5 55. 4	$19.8 \\ 20.2$	18 19	110.9 111.8	40. 4 40. 7	78 79	$167.3 \\ 168.2$	$60.9 \\ 61.2$	38	$\begin{array}{c c} 223.6 \\ 224.6 \end{array}$	81.4	98	280. 0 281. 0	101.9
60	56.4	$20.2 \\ 20.5$	20	$111.8 \\ 112.8$	40.7	80	168. 2	$61.2 \\ 61.6$	39 40	224.6 225.5	81. 7 82. 1	99 300	281. 0	102.3 102.6
					-2.0		200.1	01.0	10		J2. 1		201.0	102.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						100 /11	100 050						- 1	

70° (110°, 250°, 290°).

TABLE 2.

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Difference of Latitude and Departure for 20° (160°, 200°, 340°).

				ncc or i	za troud	- and	Dopure		20 (, 20	, 010	٠.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	282. 9	103.0	361	339. 2	123. 5	421	395.6	144.0	481	452.0	164.5	541	508.4	185.0
02	283.8	103. 3	62	340. 2	123.8	22	396.6	144.3	82	453.0	164.8	42	509.3	185. 4
03	284.7	103.6	63	341. 1	124. 2	23	397.5	144.7	83	453.9	165. 2	43	510.3	185.7
04	285.7	104.0	64	342. 1	124.5	24	398.4	145.0	84	454.8	165.5	44	511.2	186.0
05	286.6	104.3	65	343.0	124.8	25	399.4	145.4	85	455.8	165.9	45	512.1	186.4
06	287.6	104.7	66	343.9	125.2	26	400.3	145.7	86	456.7	166.3	46	513.1	186.8
07	288.5	105.0	67	344.9	125.5	27	401.3	146.1	87	457.7	166.6	47	514.0	187.1
08	289.4	105.4	68	345.8	125. 9	28	402. 2	146.4	88	458.6	166.9	48	515.0	187. 4
09	290.4	105.7	69	346.8	126.2	29	403.1	146.7	89	459.5	167.3	49	515.9	187.8
10	$\frac{291.3}{291.3}$	106.0	70	$\frac{347.7}{340.2}$	126.6	30	404.1	147.1	90	460.5	167.7	50	516.8	188.2
311	292.3	106.4	371	348.6	126. 9	431	405.0	147. 4 147. 8	491	461. 4 462. 4	$168.0 \\ 168.3$	551	517. 8 518. 7	188.5 188.8
12	293.2	106. 7 107. 1	72 73	349. 6 350. 5	$\begin{vmatrix} 127.2 \\ 127.6 \end{vmatrix}$	32 33	406. 0 406. 9	148.1	92 93	463.3	168.6	$\frac{52}{53}$	519.7	189.1
13 14	294. 1 295. 1	107.1	74	351.5	127. 9	34	407.8	148. 4	94	464. 2	168. 9	54	520.6	189. 4
15	296. 0	107.7	75	352. 4	128.3	35	408.8	148.8	95	465. 2	169.3	55	521.5	189.8
16	297. 0	108.1	76	353.3	128.6	36	409.7	149.1	96	466.1	169.6	56	522.5	190. 2
17	297.9	108.4	77	354.3	129.0	37	410.7	149.5	97	467.0	170.0	57	523.4	190.5
18	298.8	108.8	78	355.2	129.3	38	411.6	149.8	98	468.0	170.3	58	524.4	190.8
19	299.8	109.1	79	356.2	129.6	39	412.5	150.2	99	468. 9	170.7	59	525.3	191.2
20	300.7	109.5	80	357.1	130.0	40	413.5	150.5	500	469. 9	171.0	60	526.2	191.6
321	301.6	109.8	381	358.0	130.3	441	414.4	150.8	501	470.8	171.3	561	527. 2	191.9
22	302.6	110.1	82	359.0	130.7	42	415.4	151. 2	02	471.7	171.7	62	528.1	192.2
23	303.5	110.5	83	359.9	131.0	43	416.3	151.5	03	472.7	172.0	63	529.0	192.5
24	304.5	110.8	84	360.8	131.3	44	417.2	$\begin{vmatrix} 151.9 \\ 152.2 \end{vmatrix}$	04	473.6	172.4	64	530.0	192.9
25 26	305.4	$ 111.2 \\ 111.5 $	85 86	$361.8 \\ 362.7$	$\begin{vmatrix} 131.7 \\ 132.0 \end{vmatrix}$	45 46	418. 2 419. 1	152.21 152.5	05 06	474. 5 475. 4	$\begin{vmatrix} 172.7 \\ 173.0 \end{vmatrix}$	65 66	530. 9 531. 8	193. 2 193. 6
27	306.3	111.8	86 87	363.7	132.4	47	420. 0	152.9	07	476.4	173.4	67	532. 8	193. 9
28	308. 2	112.2	88	364.6	132. 7	48	421.0	153. 2	08	477.3	173.7	68	533.7	194. 2
29	309. 2	112.5	89	365.5	133. 1	49	421.9	153.6	09	478.3	174.1	69	534.7	194.6
30	310.1	112.9	90	366.5	133.4	50	422.9	153.9	10	479.2	174.4	70	535.6	195.0
331	311.0	113.2	391	367.4	133.7	451	423.8	154.3	511	480.2	174.8	571	536.6	195.3
32	312.0	113.6	92	368.4	134.1	52	424.7	154.6	12	481.1	175.1	72	537.5	195.6
33	312.9	113.9	93	369.3	134.4	53	425.7	154.9	13	482.1	175.4	73	538.5	195.9
34	313.9	114.2	94	370. 2	134.8	54	426.6	155.3	14.	483.0	175.8	74	539, 4	196.3
35	314.8	114.6	95	371.2	135.1	55	427.6	155.6	15	484.0	176.1	75	540.3	196.6
36 37	315. 7 316. 7	114.9 115.3	96 97	$372.1 \\ 373.1$	135. 4 135. 8	56 57	428. 5 429. 4	156. 0 156. 3	16 17	484.9	176.5 176.8	76 77	541.3 542.2	197. 0 197. 3
38	317. 6	115.6	98	374.0	136.1	58	430.4	156. 7	18	486.8	$170.8 \\ 177.2$	78	543. 2	197. 7
39	318.6	116.0	99	374.9	136.5	59	431.3	157. 0	19	487.7	177.5	79	544.1	198.0
40	319.5	116.3	400	375. 9	136.8	60	432.3	157.4	20	488.7	177. 9	80	545.0	198. 4
341	320.4	116.6	401	376:8	137.2	461	433.2	157.7	521	489.6	178. 2	581	546.0	198.7
42	321.4	117.0	02	377.8	137.5	62	434.1	158.0	22	490.5	178.5	82	546.9	199.0
43	322.3	117.3	03	378.7	137.8	63	435.1	158.4	23	491.5	178.9	83	547.9	199.4
44	323.3	117.7	04	379.6	138. 2	64	436.0	158.7	24	492.4	179.2	84	548.8	199.8
45	324.2	118.0	05	380.6	138.5	65	437.0	159.0	25	493.4	179.6	85	549.8	200.1
46	325.1	118.4	06	381.5	138.9	66	437.9	159.4	26	494.3	179.9	86	550.7	200.4
47	326.1	118.7	07	382.5	139. 2	67	438.8	159.7	27	495.3	180. 2	87	551.7	200.8
48 49	$\begin{vmatrix} 327.0 \\ 328.0 \end{vmatrix}$	119.0	08 09	383.4	139.6	68	439.8	160.1	28	496. 2	180.6	88	552.6	201. 2
50	328. 9	119. 4 119. 7	10	384. 3 385. 3	139.9 140.2	69 70	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	160. 4 160. 8	29 30	497. 1 498. 1	181.0	89 90	553. 5 554. 4	201.5 201.8
351	329.8	$\frac{119.7}{120.1}$		386. 2	140. 2	471	442.6	161.1	$\frac{30}{531}$	499. 0	181.6		555.4	
52	330.8	120. 1			140. 6			161 4	32	499.0	181. 9	$\frac{591}{92}$	556.3	202.1 202.4
53	331.7	120. 7	13	388.1	141.3	73	444.5	161. 8	33	500.9	182.3	93	557.3	202. 4
54	332.7	121.1	14	389.0	141.6	74	445.4	162.1	34	501.8	182.6	94	558. 2	203. 2
55	333.6	121.4	15	390.0	141.9	75	446.4	162.5	35	502.7	183.0	95	559.1	203.5
56	334.5	121.8	16	390.9	142.3	76	447.3	162.8	36	503.7	183.3	96	560.0	203.8
57	335.5	122.1	17	391.9	142.6	77	448. 2	163. 2	37	504.6	183.7	97	561.0	204. 2
58	336.4	122.5	18	392.8	143.0	78	449. 2	163.5	38	505.5	184.0	98	561.9	204.6
59	337.4	122.8		393.7	143. 3	79	450.1	163.8	39	506.5	184.3	99	562.9	204.9
60	338.3	123.1	20	394.7	143.7	80	451.1	164. 2	40	507.4	184.7	600	563.8	205. 2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Don	Tet	Dist.	Don	Lot	Dist.	Don	Tot
D15t.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

70° (110°, 250°, 290°).

TABLE 2.

Difference of Latitude and Departure for 21° (159°, 201°, 339°).

						-	Departe		(-	, 201	, 000)•		
Dist	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.4	61	56. 9	21.9	121	113.0	43.4	181	169.0	64. 9	241	225.0	86.4
$\bar{2}$	1.9	0.7	62	57.9	22. 2	22	113.9	43.7	82	169.9	65. 2	42	225.9	86.7
3	2.8	1.1	63	58.8	22.6	23	114.8	44.1	83	170.8	65.6	43	226.9	87.1
4	3.7	1.4	64	59. 7	22.9	24	115.8	44.4	84	171.8	65. 9	44	227.8	87.4
5	4.7	1.8	65	60.7	23.3	25	116.7	44.8	85	172.7	66.3	45	228.7	87.8
6	5. 6	2.2	66	61.6	23.7	26	117.6	45. 2	86	173.6	66.7	46	229.7	88. 2
7	6.5	2.5	67	62.5	24.0	27	118.6	45.5	87	174.6	67.0	47	230. 6	88.5
8	7.5	$\frac{2.9}{3.2}$	68	$63.5 \\ 64.4$	$24.4 \\ 24.7$	28 29	$119.5 \\ 120.4$	45.9	88 89	175. 5 176. 4	67.4	48	231.5	88.9
$\begin{array}{c c} 9 \\ 10 \end{array}$	$8.4 \\ 9.3$	3.6	69 70	65.4	25. 1	30	120.4 121.4	$\begin{vmatrix} 46.2 \\ 46.6 \end{vmatrix}$	90	177.4	67. 7 68. 1	49 50	232.5 233.4	89. 2 89. 6
	10.3	$\frac{3.0}{3.9}$	$\frac{70}{71}$	66.3	$\frac{25.1}{25.4}$	131	$\frac{121.4}{122.3}$	46.9	191	178.3	68.4	$\frac{50}{251}$	$\frac{234.3}{234.3}$	90.0
$\begin{array}{c c} 11 \\ 12 \end{array}$	11. 2	4.3	72	67.2	$\frac{25.4}{25.8}$	$\frac{131}{32}$	122.3 123.2	47.3	92	179. 2	68.8	$\frac{251}{52}$	235. 3	90. 0
13	12. 1	4.7	73	68. 2	26. 2	33	124. 2	47.7	93	180. 2	69. 2	53	236. 2	90.7
14	13. 1	5.0	74	69. 1	26.5	34	125. 1	48.0	94	181.1	69.5	54	237.1	91.0
15	14.0	5.4	75	70.0	26. 9	35	126.0	48.4	95	182.0	69.9	55	238.1	91.4
16	14.9	5.7	76	71.0	27.2	36	127.0	48.7	96	183.0	70.2	56	239.0	91.7
17	15.9	6.1	77	71.9	27.6	37	127.9	49.1	97	183.9	70.6	57	239.9	92.1
18	16.8	6.5	78	72.8	28.0	38	128.8	49.5	98	184.8	71.0	58	240.9	92.5
19	17.7	6.8	79	73.8	28.3	39	129.8	49.8	99	185.8	71.3	59	241.8	92.8
20	18.7	7.2	80	$\frac{74.7}{25.0}$	28.7	40	130.7	50.2	200	186. 7	71.7	60	242.7	93.2
21	19.6	7.5	81	75.6	29.0	141	131.6	50.5	201	187.6	72.0	261	243.7	93. 5
22	20.5	$7.9 \\ 8.2$	82	$76.6 \\ 77.5$	29.4 29.7	$\frac{42}{43}$	132.6 133.5	$50.9 \\ 51.2$	02	188.6	72. 4 72. 7	62 63	244.6	93. 9
23 24	$21.5 \\ 22.4$	8.6	83 84	78.4	30. 1	44	134. 4	$51.2 \\ 51.6$	03 04	189. 5 190. 5	73.1	64	245. 5 246. 5	94. 3 94. 6
25	23. 3	9.0	85	79.4	30. 5	45	135. 4	52. 0	05	191.4	73. 5	65	247. 4	95. 0
26	24.3	9.3	86	80. 3	30.8	46	136.3	52. 3	06	192. 3	73: 8	66	248.3	95. 3
27	25.2	9.7	87	81. 2	31. 2	47	137. 2	52.7	07	193.3	74. 2	67	249.3	95. 7
28	26.1	10.0	88	82.2	31.5	48	138. 2	53.0	08	194. 2	74.5	68	250. 2	96.0
29	27.1	10.4	89	83.1	31.9	49	139.1	53.4	09	195.1	74.9	69	251.1	96.4
30	28.0	10.8	90	84.0	32.3	_ 50	140.0	53.8	10	196.1	75.3	70	252.1	96.8
31	28. 9	11.1	91	85.0	32.6	151	141.0	54.1	211	197.0	75.6	271	253.0	97.1
32	29.9	11.5	92	85.9	33.0	52	141.9	54.5	12	197.9	76.0	72	253.9	97.5
33	30.8	11.8	93	86.8	33. 3	53	142.8	54.8	13	198.9	76.3	73	254.9	97.8
34	31.7	$12.2 \\ 12.5$	94 95	87. 8 88. 7	33.7 34.0	54	143.8	55. 2	14	199.8	76. 7	74	255.8	98. 2
35 36	32.7 33.6	12.9	96	89.6	34.4	55 56	144.7 145.6	55. 5 55. 9	15 16	200. 7	77.0	75 76	256. 7 257. 7	98. 6 98. 9
37	34. 5	13.3	97	90.6	34.8	57	146.6	56.3	17	202.6	77.8	77	258.6	99.3
38	35. 5	13.6	98	91.5	35. 1	58	147.5	56.6	18	203. 5	78.1	78	259. 5	99.6
39	36. 4	14.0	99	92.4	35.5	5 9	148.4	57.0	19	204.5	78.5	79	260.5	100.0
40	37.3	14.3	100	93.4	35.8	60	149.4	57.3	20	205.4	78.8	80	261.4	100.3
41	38. 3	14.7	101	94.3	36. 2	161	150.3	57.7	221	206.3	79.2	281	262.3	100.7
42	39.2	15.1	02	95. 2	36. 6	62	151.2	58.1	22	207.3	79.6	82	263.3	101.1
43	40. 1	15.4	03	96. 2	36.9	63	152. 2	58.4	23	208. 2	79.9	83	264. 2	101.4
44	41.1	15.8	04	97.1	37.3	64	153.1	58.8	24	209.1	80.3	84	265.1	101.8
45	42.0	16.1	05	98. 0	37.6	65	154.0	59.1	25	210.1	80.6	85	266.1	102.1
$\begin{array}{c c} 46 \\ 47 \end{array}$	$42.9 \\ 43.9$	16.5 16.8	06 07	99. 0 99. 9	38. 0 38. 3	66	155. 0 155. 9	59. 5 59. 8	$\frac{26}{27}$	211.0 211.9	81.0	86 87	$267.0 \\ 267.9$	102.5 102.9
48	43. 9	17.2	08	100.8	38.7	68	156.8	60. 2	28	211. 9	81. 7	88	268. 9	102.9
49	45.7	17.6	09	101.8	39. 1	69	157.8	60.6	29	213.8	82.1	89	269.8	103. 6
50	46. 7	17.9	10	102.7	39.4	70	158.7	60.9	30	214.7	82.4	90	270.7	103. 9
51	47.6	18.3	111	103.6	39.8	171	159.6	61. 3	231	215.7	82.8	291	271.7	104.3
$5\overline{2}$	48.5	18.6		104.6	40.1	72	160.6	61.6	32		83.1	92	272.6	104.6
53	49.5	19.0	13	105.5	40.5	73	161.5	62.0	33	217.5	83.5	93	273.5	105.0
54	50.4	19.4	14	106.4	40.9	74	162.4	62.4	34	218.5	83.9	94	274.5	105.4
55	51.3	19.7	15	107.4	41.2	75	163.4	62.7	35	219.4	84.2	95	275.4	105.7
56	52.3	20.1	16	108.3	41.6	76	164.3	63.1	36	220.3	84.6	96	276.3	106.1
57 58	53. 2 54. 1	20.4	17 18	109. 2 110. 2	41. 9 42. 3	77	165. 2 166. 2	63. 4 63. 8	37	221.3	84.9	97	277.3	106.4
59	55.1	21.1	19	110. 2	42. 6	78 79	167.1	64.1	38 39	222. 2 223. 1	85. 3 85. 6	98 99	278. 2 279. 1	106.8 107.2
60	56.0	21.5	20	112.0	43.0	80	168.0	64.5	40	224.1	86.0	300	280. 1	107. 5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						69° (111°, 24	9°, 291	°).					

TABLE 2.

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Difference of Latitude and Departure for 21° (159°, 201°, 339°).

												<i>'</i>		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
201	281.0	107. 9	361	337. 0	129.4	491	393. 0	150. 9	481	449.0	172.4	541	505. 1	193. 9
$\begin{array}{c} 301 \\ 02 \end{array}$	281. 9	107. 9	62	337.9	129.4	$\begin{array}{c} 421 \\ 22 \end{array}$	394.0	150. 9	82	450.0	172.4 172.7	42	506. 0	194. 2
03	282.9	108. 6	63	338. 9	130. 1	23	394.9	151. 6	83	450. 9	173. 1	43	507.0	194.6
04	283.8	108. 9	64	339.8	130. 1	24	395.8	152.0	84	451.8	173.5	44	507.9	195.0
05	284.7	109.3	65	340.7	130. 8	25	396.8	152.3	85	452.8	173.8	45	508.8	195.3
06	285.7	109.7	66	341.7	131. 2	26	397.7	152. 7	86	453.7	174.2	46	509.8	195.7
07	236.6	110.0	67	342.6	131.5	27	398.6	153. 0	87	454.6	174.5	47	510.7	196.0
08	287.5	110.4	68	343.5	131.9	28	399.6	153. 4	88	455.6	174. 9	48	511.6	196.4
09	288.5	110.7	79	344.5	132. 2	29	400.5	153.7	89	456.5	175.2	49	512.6	196.8
10	289.4	111.1	70	345.4	132.6	30	401.4	154.1	90	457.4	175.6	50	513.5	197.1
311	290.3	111.5	371	346.3	133.0	431	402.4	154.5	491	458.4	176.0	551	514.4	197.5
12	291.3	111.8	72	347. 3	133. 3	32	403.3	154.8	92	459.3	176.3	$5\overline{2}$	515.4	197.8
13	292. 2	112. 2	73	348. 2	133.7	33	404. 2	155. 2	93	460. 2	176. 7	53	516.3	198. 2
14	293.1	112.5	74	349.1	134.0	34	405. 2	155.5	94	461. 2	177.0	54	517. 2	198.6
15	294.1	112.9	75	350.1	134. 4	35	406.1	155.9	95	462.1	177.4	55	518. 2	198.9
16	295.0	113. 2	76	351.0	134.7	36	407.0	156.3	96	463.0	177.8	56	519.1	199.3
17	295.9	113.6	77	351.9	135.1	37	408.0	156.6	97	464.0	178.1	57	520.0	199.6
18	296.9	114.0	78	352.9	135.5	38	408.9	157.0	98	464.9	178.5	58	521.0	200.0
19	297.8	114.3	79	353.8	135.8	39	409.8	157.3	99	465.8	178.8	59	521.9	200.3
20	298.7	114.7	80	354.7	136. 2	40	410.8	157.7	500	466.8	179.2	60	522.8	200.7
321	299.7	115.0	381	355.7	136.5	441	411.7	158.0	501	467.7	179.5	561	523.8	201.0
22	300.6	115.4	82	356.6	136.9	42	412.6	158. 4	02	468.6	179.9	62	524.7	201.4
23	301.5	115.8	83	357.5	137.3	43	413.6	158.8	03	469.6	180.3	63	525.6	201.8
24	302.5	116.1	84	358.5	137.6	44	414.5	159.1	04	470.5	180.6	64	526.6	202.1
25	303.4	116.5	85	359.4	138.0	45	415.4	159.5	05	471.5	181.0	65	527.5	202.5
26	304.3	116.8	86	360.3	138.3	46	416.4	159.8	06	472.4	181.3	66	528.4	202.8
27	305. 3	117.2	87	361.3	138. 7	47	417.3	160. 2	07	473.3	181.7	67	529. 4	203. 2
28	306. 2	117.5	88	362. 2	139. 1	48	418.2	160.5	08	474.3	182.0	68	530.3	203.5
29	307.1	117.9	89	363.1	139.4	49	419.2	160.9	09	475.2	182.4	69	531. 2	203.9
30	308.1	118.3	90	364.1	139.8	50	420.1	161.3	10	476.1	182.8	70	532. 2	204.3
331	309.0	118.6	391	365.0	140.1	451	421.0	161. 6	511	477.1	183.1	571	533.1	204.6
32	309.9	119.0	92	365.9	140.5	52	422.0	162.0	12	478.0	183.5	72	534.0	205. 0
33	310.9	119.3	93	366. 9	140.8	53	422.9	162. 3	13	478.9	183.8	73	535.0	205. 4
34	311.8	119.7	94	367.8	141.2	54	423.8	162.7	14	479.9	184. 2	74	535. 9	205.7
35 36	312. 7 313. 7	120.1 120.4	95 96	368. 7 369. 7	141. 6 141. 9	55 56	$\begin{array}{c c} 424.8 \\ 425.7 \end{array}$	163. 1 163. 4	15 16	480. 8 481. 7	184.6	75 76	536. 8 537. 8	206. 1 206. 4
37	314.6	120. 4	97	370.6	142.3	57	426.6	163. 8	17	482.7	184. 9 185. 3	77	538.7	206. 8
38	315. 5	120.0 121.1	98	371.5	142.6	58	427.6	164. 1	18	483.6	185.6	78	539.6	207. 1
39	316.5	121.5	99	372.5	143.0	59	428.5	164.5	19	484.5	186.0	79	540.6	207.5
40	317.4	121.8	400	373.4	143.4	60	429.4	164. 9	20	485. 5	186. 4	80	541.5	207.9
341	318.3	122.2	401	374.3	143.7	461	430.4	165. 2	521	486.4	186.7	581	542.4	208. 2
42	319.3	122.6	02	375.3	144.1	62	431.3	165.6	22	487.3	187. 1	82	543. 4	208.6
43	320. 2	122.9	03	376. 2	144.4	63	432. 2	165. 9	23	488.3	187.4	83	544.3	208. 9
44	321. 1	123. 2	04	377.1	144.8	64	433. 2	166. 3	24	489. 2	187. 8	84	545. 2	209.3
45	322. 1	123.6	05	378.1	145.1	65	434. 1	166.6	$2\overline{5}$	490.1	188.1	85	546. 2	209.6
46	323.0	124.0	06	379.0	145.5	66	435. 0	167.0	26	491.1	188.5	86	547.1	210.0
47	323.9	124.4	07	379.9	145.9	67	436.0	167.4	27	492.0	188.9	87	548.0	210.4
48	324.9	124.7	08	380.9	146.2	68	436.9	167.7	28	492.9	189. 2	88	549.0	210.7
49	325.8	125.1	09	381.8	146.6	69	437.8	168.1	29	493. 9	189.6	89	549.9	211.1
50	326. 7	125.4	_ 10	382.7	146.9	70_	438.8	168. 4	30	494.8	189. 9	90	550.8	211.4
351	327.7	125.8	411	383. 7	147.3	471	439.7	168.8	531	495.7	190.3	591	551.8	211.8
52	328.6	126.1	12	384.6	147.7	72	440.6	169. 2	32	496.7	190.7		552.7	212. 2
53	329.5	126.5	13	385.5	148.0		441.6	169.5	33	497.6	191.0	93	553.6	212.5
54	330.5	126.9	14	386. 5	148.4	74	442.5	169.9	34	498.5	191.4	94	554.6	212.9
55	331. 4	127. 2	15	387.4	148.7	75	443.4	170. 2	35	499.5	191.7	95	555.5	213. 2
56	332.3	127.6	16	388.4	149.1	76	444.4	170.6	36	500.4	192.1	96	556.4	213.6
57	333.3	127.9	17	389.3	149.4	77	445.3	170.9	37	501.3	192.4	97	557.4	213. 9
58 59	334. 2	128.3	18	390. 2	149.8	78	446. 2	171.3	38	502.3	192.8	98	558.2	214.3
60	335.1	128.7	19	391. 2	150. 2 150. 5	79	447. 2	171.7	39	503. 2	193. 2	99	559. 2	214.7
00	336. 1	129.0	20	392.1	190. 9	80	448.1	172.0	40	504. 1	193. 5	600	560.1	215.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Tien	Lat.	Dist.	Dep.	Tet	Dist.	Dep.	Lat.
22000)	Dep.	Lat.	Dist.	Dep.	Dat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	1.8.0.
					6	300 (1	110 940	0 9019	1					

69° (111°, 249°, 291°).

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TABLE 2. Difference of Latitude and Departure for 22° (158°, 202, 338°).

									(-, 000	,•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.4	61	56.6	22.9	121	112.2	45. 3	181	167.8	67.8	241	223.5	90. 3
$\frac{2}{3}$	1.9	0.7	62	57.5	23. 2	22	113.1	45.7	82	168.7	68. 2	42	224.4	90.7
	2. 8 3. 7	$\begin{array}{ c c }\hline 1.1\\1.5\\\end{array}$	$\begin{array}{c} 63 \\ 64 \end{array}$	58. 4 59. 3	23. 6 24. 0	$\begin{array}{c} 23 \\ 24 \end{array}$	114. 0 115. 0	46.1	83	169.7	68.6	43	225.3	91.0
5	4.6	1.9	65	60.3	24. 0	$\frac{24}{25}$	115.0	46. 5	84 85	170.6 171.5	68. 9 69. 3	44 45	226. 2 227. 2	91. 4 91. 8
6	$5.\overset{\circ}{6}$	2.2	66	61. 2	24.7	$\frac{26}{26}$	116.8	47. 2	86	172.5	69.7	46	228.1	92. 2
7	6.5	2.6	67	62. 1	25.1	27	117.8	47.6	87	173.4	70.1	47	229.0	92.5
8	7.4	3.0	68	63.0	25.5	28	118.7	47.9	88	174.3	70.4	48	229. 9	92.9
$\begin{vmatrix} 9\\10 \end{vmatrix}$	8. 3 9. 3	3. 4 3. 7	69 70	64. 0 64. 9	25. 8 26. 2	29 30	119.6 120.5	48. 3 48. 7	89 90	175. 2 176. 2	70.8	49 50	230. 9 231. 8	93. 3 93. 7
$\frac{10}{11}$	$\frac{0.0}{10.2}$	4.1	$\frac{-70}{71}$	65.8	26.6	131	121.5	49.1	$\frac{36}{191}$	177.1	71.5	251	$\frac{231.8}{232.7}$	94.0
$\tilde{1}\tilde{2}$	11. 1	4.5	$7\hat{2}$	66.8	27.0	32	122.4	49.4	92	178.0	71.9	52	233. 7	94.4
13	12.1	4.9	73	67. 7	27.3	33	123. 3	49.8	93	178.9	72.3	53	234. 6	94. 8 95. 2
14	13.0	5. 2	74	68.6	27. 7	34	124. 2	50.2	94	179.9	72.7	54	235.5	95.2
15 16	13. 9 14. 8	5. 6 6. 0	75 76	69.5	28. 1 28. 5	35 36	125. 2 126. 1	50.6 50.9	95 96	180. 8 181. 7	73. 0 73. 4	55 56	236. 4 237. 4	95. 5 95. 9
17	15.8	6.4	77	71.4	28.8	37	127.0	51.3	97	182.7	73. 8	57	238.3	96.3
18	16.7	6.7	78	72.3	29.2	38	128.0	51.7	98	183. 6	74.2	58	239. 2	96.6
19	17.6	7.1	79	73. 2	29.6	39	128.9	52. 1	99	184.5	74.5	59	240.1	97.0
20	18.5	7.5	80	74.2	30.0	40	129.8	52.4	200	185.4	74.9	60	241. 1	97.4
$\begin{array}{c c} 21 \\ 22 \end{array}$	19. 5 20. 4	7. 9 8. 2	81 82	75. 1 76. 0	30. 3 30. 7	$\begin{array}{c} 141 \\ 42 \end{array}$	130.7	52. 8 53. 2	$\begin{array}{c} 201 \\ 02 \end{array}$	186. 4 187. 3	75. 3 75. 7	$\begin{array}{c} 261 \\ 62 \end{array}$	242. 0 242. 9	97. 8 98. 1
23	21.3	8.6	83	77.0	31.1	43	131. 7 132. 6	53.6	03	188. 2	76.0	63	243.8	98.5
24	22.3	9.0	84	77.9	31. 1 31. 5	44	133.5	53.9	04	189.1	76.4	64	244.8	98.9
25	23. 2	9.4	85	78.8	31. 8 32. 2 32. 6	45	134. 4	54.3	05	190.1	76.8	65	245.7	99.3
$\frac{26}{27}$	$24.1 \\ 25.0$	9.7	86	79.7	32.2	46	135.4	54.7	06	191.0	77.2	66	246.6	99.6
28	26. 0	10. 1 10. 5	87 88	80. 7 81. 6	33. 0	47 48	136.3 137.2	55.1	07 08	191. 9 192. 9	77. 5 77. 9	67 68	247.6 248.5	100. 0 100. 4
29	26. 9	10.9	89	82.5	33. 3	49	138. 2	55.8	09	193.8	78.3	69	249. 4	100.8
30	27.8	11. 2	90	83.4	33. 7	50	139.1	56.2	10	194.7	78.7	70	250.3	101.1
31	28. 7	11.6	91	84.4	34.1	151	140.0	56.6	211	195.6	79.0	271	251.3	101.5
32 33	29.7 30.6	12.0	92	85.3	34.5	52	140.9	56.9	12	196.6	79.4	72	252. 2 253. 1	101.9
34	31. 5	$\begin{array}{ c c c c }\hline 12.4 \\ 12.7 \end{array}$	93 94	86. 2 87. 2	34. 8 35. 2	53 54	141.9 142.8	57. 3 57. 7	13 14	197. 5 198. 4	79.8 80.2	73 74	254.0	102. 3 102. 6
35	32. 5	13. 1	95	88. 1	35.6	55	143. 7	58.1	15	199.3	80.5	75	255.0	103.0
36	33. 4	13.5	96	89.0	36.0	56	144.6	58.4	16	200.3	80.9	76 77	255.9	103.4
37 38	$34.3 \\ 35.2$	13. 9 14. 2	97 98	89. 9 90. 9	36. 3 36. 7	57 58	145. 6 146. 5	58.8	17 18	201. 2 202. 1	81.3	77	256.8 257.8	103. 8 104. 1
39	36. 2	14.6	99	91.8	37.1	59	140. 3	59. 2 59. 6	19	202. 1	81. 7 82. 0	79	258.7	104.1
40	37. 1	15.0	100	92. 7	37.5	60	148.3	59.9	20	204.0	82. 4	80	259.6	104.9
41	38.0	15. 4	101	93.6	37.8	161	149.3	60.3	221	204. 9	82.8	281	260.5	105.3
42	38.9	15. 7	02	94.6	38. 2	62	150. 2	60.7	22	205. 8	83. 2	82	261.5	105.6
43 44	39. 9 40. 8	16. 1 16. 5	03	95. 5 96. 4	38. 6 39. 0	63 64	151.1	61. 1 61. 4	$\begin{array}{c} 23 \\ 24 \end{array}$	206. 8 207. 7	83.5 83.9	83 84	262. 4 263. 3	106. 0 106. 4
45	41.7	16.9	05	97.4	39. 3	65	152. 1 153. 0	61.8	$\frac{24}{25}$	208.6	84.3	85	264. 2	106. 8
46	42.7	17.2	06	98.3	39.7	66	153.9	62. 2	26	209.5	84.7	86	265. 2	107.1
47	43.6	17.6	07	99.2	40.1	67	154.8	62.6	27	210.5	85.0	87	266. 1	107.5
48 49	44. 5 45. 4	18. 0 18. 4	08 09	100. 1 101. 1	40.5 40.8	68 69	155. 8 156. 7	62. 9 63. 3	28 29	211. 4 212. 3	85. 4 85. 8	88 89	267. 0 268. 0	107. 9 108. 3
50	46.4	18. 7	10	102.0	41.2	70	157.6	63. 7	30	213.3	86.2	90	268. 9	108.6
51	47.3	19. 1	111	102.9	41.6	171	158.5	64. 1	231	214.2	86.5	291	269.8	109.0
52	48.2	19.5	12	103.8	42.0	72	159.5	64.4	32	215.1	86.9	92	270.7	109.4
53	49.1	19.9	13	104.8	42.3	73	160.4	64.8	33	216.0	87.3	93	271.7	109.8
54 55	50. 1 51. 0	20. 2 20. 6	14 15	105. 7 106. 6	42.7 43.1	74 75	161.3 162.3	65. 2 65. 6	34 35	217. 0 '217. 9	87. 7 88. 0	94 95	$272.6 \\ 273.5$	110. 1 110. 5
56	51.9	21.0	16	107.6	43.5	76	163. 2	65. 9	36	218.8	88.4	96	274. 4	110.9
57	52.8	21.4	17	108.5	43.8	77	164.1	66.3	37	219.7	88.8	97	275.4	111.3
58	53.8	21.7	18	109.4	44.2	78	165.0	66. 7	38	220. 7	89. 2	98	276.3	111.6
59 60	54. 7 55. 6	$22.1 \\ 22.5$	19 20	110.3 111.3	44. 6 45. 0	79 80	166. 0 166. 9	67. 1 67. 4	39 40	$221.6 \\ 222.5$	89. 5 89. 9	99 300	$277.2 \\ 278.2$	112. 0 112. 4
00		22.0		111.0	30.0	_00	100. 9	07.4	-10	222.0	00. 0	000	210.2	112. 7
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						68° (1	112°, 248	3°, 292	°).					

TABLE 2.

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Difference of Latitude and Departure for 22° (158°, 202°, 338°).

			Diner	ence or	Lautuo	e and	Depart	ure for	22 (100 , 20	4 , 558)•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	279.1	112.7	361	334. 7	135. 2	421	390.3	157. 7	481	446.0	180. 2	541	501.6	202.7
02	280.0	113.1	62	335.6	135.6	22	391.3	158.1	82	446.9	180.6	42	502.5	203.1
03	280. 9	113.5	63	336.6	136.0	23	392.2	158. 4	83	447.8	180.9	43	503.4	203.5
04	281.9	113.9	64	337.5	136. 3	24	393.1	158.8	84	448.8	181.3	44	504.4	203.8
05	282.8	114.2	65	338.4	136. 7 137. 1	25 26	394.1	159. 2 159. 6	85	449.7	181.7	45	505.3	204.2
07	283.7	114.6 115.0	66 67	339.3 340.3	137. 5	27	395.0	159. 0	86 87	450. 6 451. 6	182. 1 182. 4	46 47	506. 2 507. 2	204. 6 205. 0
08	285. 6	115. 4	68	341. 2	137.8	28	396.8	160. 3		452.5	182. 8	48	508.1	205. 3
09	286.5	115. 7	69	342. 1	138. 2	29	397.8	160.7	89	453. 4	183. 2	49	509.0	205.7
10	287.4	116. 1	70	343.1	138.6	30	398. 7	161.1	90	454. 3	183.6	50	510.0	206. 1
311	288. 4	116.5	371	344.0	139.0	431	399.6	161.4	491	455.3	184.0	551	510.9	206.5
12	289.3	116.8	72	344.9	139.3	32	400.5	161.8	92	456.2	184.3	52	511.8	206.8
13	290. 2	117.2	73	345.8	139.7	33	401.5	162. 2	93	457.1	184.7	53	511. 8 512. 7	206. 8 207. 2
14	291.1	117.6	74	346.8	140. 1	34	402.4	162.6	94	458.0	185.1	54	513.6	1207.6
15	292.1	118.0	75	347.7	140.5	35	403.3	162.9	95	459.0	185.4	55	514.6	208. 0 208. 3 208. 7
16	293.0	118.3	76	348.6	140.8	36	404.3	163. 3	96	459.9	185.8	56	515.5	208.3
17 18	293. 9	118.7	77 78	349.5	141.2	37	405. 2	163. 7	97	460.8	186. 2	57	516.4	208.7
19	294. 8 295. 8	119.1 119.5	79	350. 5 351. 4	141.6 141.9	38 39	406. 1 407. 0	164. 1 164. 4	98 99	461. 8 462. 7	186.6	58 50	517.4	209. 1 209. 4
20	296. 7	119.8	80	352.3	141. 9	40	408.0	164. 4	500	463.6	186. 9 187. 3	59 60	518.3 519.2	209. 4
321	297.6	120. 2	381	353.3	142.7	441	408.9	165. 2	501	464.5	187. 7	$\frac{-60}{561}$	520. 1	210. 2
22	298.6	120. 6	82	354.2	143. 1	42	409.8	165.5	02	465.4	188. 0	62	520.1	210. 2
23	299.5	121.0	83	355. 1	143.4	43	410.7	165.9	03	466. 4	188. 4	63	522.0	210. 9
24	300.4	121.3	84	356.0	143.8	44	411.7	166.3	04	467.3	188. 8	64	522. 9	211.3
25	301.3	121.7	85	357.0	144.2	45	412.6	166.7	05	468.2	189. 2	65	522. 9 523. 8	211.7
26	302.3	122.1	86	357. 9	144.6	46	413.5	167.0	06	469. 2	189.5	66	524.8	212.0
27	303.2	122.5	87	358.8	144.9	47	414.5	167.4	07	470.1	189.9	67	525.7	212.4
28	304.1	122.8	88	359. 7	145. 3	48	415.4	167.8	08	471.0	190.3	68	526.6	212.8
29 30	305.0	123. 2	89	360.7	145.7	49	416.3	168.2	09	471.9	190.7	69	527.5	213.2
	$\frac{306.0}{306.9}$	123.6	90	361.6	146.1	50	417.2	$\frac{168.5}{100.0}$	10	472.9	$\frac{191.1}{101.4}$	70	528.5	213.5
331 32	306.9	124.0 124.3	391 92	362. 5 363. 5	146.4 146.8	$\frac{451}{52}$	418. 2 419. 1	168.9	$\frac{511}{12}$	473. 8 474. 7	191.4	571	529. 4	213.9
33	308.8	124.3 124.7	93	364.4	147. 2	53	420.0	169.3 169.7	13	475.6	191.8 192.2	72 73	530.3 531.2 532.2	214.3 214.7
34	309. 7	125. 1	94	365.3	147.6	54	420.9	170.0	14	476.6	192.5	74	539 9	215.0
35	310.6	125.5	95	366. 2	147.9	55	421.9	170. 4	15	477.5	192.9	75	533. 1	215.4
36	311.5	125.8	96	367.2	148.3	56	422.8	170.8	16	478.4	193.3	76	534. 0	215.8
37	312.5	126. 2	97	368.1	148.7	57	423.7	171.2	17	479.3	193.7	77	533. 1 534. 0 534. 9	216. 2
38	313.4	126.6	98	369.0	149.1	58	424.6	171.5	18	480.3	194.0	78	535.9	216.5
39	314.3	127.0	99	369. 9	149.4	59	425.6	171.9	19	481.2	194.4	79	536.8	216.9
40	315. 2	127.3	400	370.9	149.8	60	426.5	172.3	20	482.1	194.8	80	535. 9 536. 8 537. 7	217.3
341	316.2	127.7	401	371.8	150. 2	461	427.4	172.7	521	483.0	195. 2	581	538.6	217.7
42	317. 1 318. 0	128.1	02	372.7	150.6	62	428.4	173.0	22	484.0	195.5	82	539.6	218.0
43 44	318.0	$128.5 \\ 128.8$	03 04	373. 7 374. 6	150.9 151.3	63 64	429.3 430.2	173.4 173.8	23 24	484. 9 485. 8	195.9 196.3	83 84	540.5	218.4
45	319. 9	129. 2	05	375.5	151. 7	65	431.1	174. 2	25	486.7	196. 3	85	541. 4 542. 4	218. 8 219. 2
46	320, 8	129.6	06	376.4	152. 1	66	432.1	174.5	26	487.7	197. 0	86	543.3	219. 2
47	3217	130.0	07	377. 4	152. 4	67	433.0	174.9	27	488.6	197. 4	87	544. 2	219. 9
48	321.•7 322. 7	130.3	08	378.3	152, 8	68	433.9	175.3	28	489.5	197. 8	88	545.1	220. 3
49	323.6	130.7	09	379.2	153. 2	69	434.8	175.7	29	490.4	198. 2	89	546.1	220.7
50	324.5	131.1	10	380.1	153.6	70	435.8	176.0	30	491.4	198.5	90	547.0	221.0
351	325.4	131.5	411	381.1	153.9	471	436.7	176.4	531	492.3	198.9	591	547.9	221.4
52	326.4	131.8	12	382.0	154.3	72	437.6	176.8	32	493. 2	199.3	1	548.9	221.8
53	327.3	132. 2 132. 6	13	382.9	154.7	73	438.6	177. 2 177. 5	33	494.2	199.7	93	549.8	222.2
54 55	$328.2 \\ 329.2$	132. 6 133. 0	14 15	383. 9 384. 8	155. 1	74	439. 5 440. 4	177.0	34	495.1	200.0	94	550. 7	222.5
56	330. 1	133.3	16	385.7	155. 4 155. 8	75 76	440. 4	177. 9 178. 3	$\begin{array}{c c} 35 \\ 36 \end{array}$	496. 0 496. 9	200.4 200.8	95 96	551.7	222.9
57	331.0	133. 7	17	386.6	156. 2	77	442.3	178. 7	37	490. 9	200. 8	97	552. 6 553. 5	223. 3 223. 7
58	332.0	134. 1	18	387.6	156.6	78	443. 2	179.0	38	498.8	201. 5	98	554.4	224.0
59	332. 9	134.5	19	388.5	156. 9	79	444.1	179.4	39	499.7	201.9	99	555.4	224. 4
60	333.8	134.8	20	389. 4	157. 3	80	445.0	179.8	40	500.7	202. 3	600	556.3	224. 8
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
·														

68° (112°, 248°, 292°).

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TABLE 2.

Difference of Latitude and Departure for 23° (157°, 203°, 337°).

	,					-	Dopare			101 , 20	0,001	/•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.4	61	56. 2	23.8	121	111.4	47.3	181	166.6	70.7	241	221.8	94. 2
2	1.8	0.8	62	57.1	24.2	22	112.3	47.7	82	167.5	71.1	42	222.8	94.6
3	2.8	1.2	63	58.0	24.6	23	113. 2	48.1	83	$167.5 \\ 168.5$	71.5	43	223.7	94.9
4	3. 7	1.6	64	58.9	25.0	24	114.1	48.5	84	169.4	71.9	44	224.6	95.3
5	4.6	2.0	65	59.8	25.4	25	115.1	48.8	85	170.3 171.2	72.3	45	225.5	95.7
$\frac{6}{7}$	$5.5 \\ 6.4$	$\begin{array}{ c c c } 2.3 \\ 2.7 \end{array}$	66 67	60.8 61.7	25. 8 26. 2	$\frac{26}{27}$	116.0 116.9	49. 2 49. 6	86 87	171. 2	72.7 73.1	46	226. 4 227. 4	96.1
8	7.4	3.1	68	62.6	26.6	28	117.8	50.0	88	173 1	73.5	47 48	228.3	96.5 96.9
9	8.3	3.5	69	63. 5	27.0	29	118.7	50.4	89	173. 1 174. 0	73.8	49	229.2	97.3
10	9.2	3.9	70	64.4	27.4	30	119.7	50.8	90	174.9	74.2	50	230.1	97.7
11	10.1	4.3	71	65. 4	27.7	131	120.6	51.2	191	175.8	74.6	251	231.0	98.1
12	11.0	4.7	72	66.3	28.1	32	121.5	51.6	92	176.7	75.0	52	232.0	98.5
13	12.0	5. 1	73	67.2	28.5	33	122.4	52.0	93	177. 7	75.4	53	232.9	98.9
14	12.9	5.5	74	68.1	28.9	34	123.3	52.4	94	178.6	75.8	54	233.8	99.2
15 16	13.8 14.7	5. 9 6. 3	75 76	69. 0 70. 0	29.3 29.7	35 36	124.3 125.2	52. 7 53. 1	95 96	179.5 180.4	76. 2 76. 6	55 56	234. 7 235. 6	99.6 100.0
17	15.6	6.6	77	70.9	30.1	37	126.1	53.5	97	181.3	77.0	57	236.6	100.4
18	16.6	7.0	78	71.8	30.5	38	127.0	53.9	98	182. 3	77.4	58	237.5	100.8
19	17.5	7.4	79	72.7	30.9	39	128.0	54.3	99	183. 2	77.8	59	238.4	101. 2
20	18.4	7.8	80	73.6	31.3	40	128.9	54.7	200	184.1	78.1	60	239.3	101.6
21	19.3	8.2	81	74.6	31.6	141	129.8	55. 1	201	185.0	78.5	261	240.3	102.0
22	20.3	8.6	82	75.5	32.0	42	130.7	55.5	02	185.9	78.9	62	241. 2	102.4
23	21. 2	9.0	83	76.4	32.4	43	131.6	55.9	03	186.9	79.3	63	242.1	102.8
$\frac{24}{25}$	$ \begin{array}{c c} 22.1 \\ 23.0 \end{array} $	9. 4 9. 8	84 85	77.3 78.2	32. 8 33. 2	44 45	132. 6 133. 5	56. 3 56. 7	04 05	187. 8 188. 7	79. 7 80. 1	64 65	$243.0 \\ 243.9$	103. 2 103. 5
26	23.0 23.9	10. 2	86	79.2	33.6	46	134. 4	57.0	06	189.6	80.5	66	244.9	103. 9
27	24.9	10.5	87	80.1	34.0	47	135. 3	57.4	07	190.5	80.9	67	245.8	104.3
28	25.8	10.9	88	81.0	34.4	48	136.2	57.8	08	191.5	81.3	68	246.7	104.7
29	26.7	11.3	89	81.9	34.8	49	137. 2	58.2	09	192.4	81.7	69	247.6	105.1
30	27.6	11.7	90	82.8	35. 2	_50	138.1	58.6	_10	193.3	82. 1	70	248.5	105.5
31	28.5	12.1	91	83.8	35. 6	151	139.0	59.0	211	194. 2	82.4	271	249.5	105.9
32	29.5	12.5	92	84.7	35.9	52 53	139.9 140.8	59.4	$\begin{array}{c} 12 \\ 13 \end{array}$	195.1	82.8	72	250.4	106.3
33 34	30.4 31.3	12. 9 13. 3	93 94	85.6 86.5	36. 3 36. 7	54	140.8	59. 8 60. 2	13	196. 1 197. 0	83. 2 83. 6	$\frac{73}{74}$	251. 3 252. 2	106. 7 107. 1
35	32. 2	13. 7	95	87.4	37.1	55	142.7	60.6	15	197.9	84.0	75	253. 1	107.5
36	33. 1	14. 1	96	88.4	37.5	56	143.6	61.0	16	198.8	84.4	76	254.1	107. 8 108. 2
37	34.1	14.5	97	89.3	37.9	57	144.5	61.3	17	199.7	84.8	77	255.0	108. 2
38	35.0	14.8	98	90.2	38.3	58	145.4	61.7	18	200.7	85.2	78	255. 9	108.6
39	35. 9	15.2	99	91.1	38.7	59	146.4	62.1	19	201.6	85.6	79	256.8	109.0
40	36.8	15.6	100	92.1	39.1	60	147.3	62.5	20	202.5	86.0	80	257. 7	109.4
$\begin{array}{c} 41 \\ 42 \end{array}$	37. 7 38. 7	16. 0 16. 4	$\frac{101}{02}$	93. 0 93. 9	39. 5 39. 9	161 62	148. 2 149. 1	62. 9 63. 3	$\begin{array}{c} 221 \\ 22 \end{array}$	203. 4 204. 4	86. 4 86. 7	$\begin{array}{c} 281 \\ 82 \end{array}$	258. 7 259. 6	109.8 110.2
42	39.6	16. 8	03	94.8	40. 2	63	150.0	63. 7	23	205.3	87.1	83	260.5	110. 2
44	40.5	17. 2	04	95.7	40.6	64	151.0	64. 1	24	206. 2	87.5	84	261. 4	111.0
45	41.4	17.6	05	96.7	41.0	65	151.9	64.5	25	207.1	87.9	85	262. 3	111.4
46	42.3	18.0	06	97.6	41.4	66	152.8	64.9	26	208.0	88.3	86	263.3	111.7
47	43.3	18.4	07	98.5	41.8	67	153. 7	65. 3	27	209. 0	88.7	87	264. 2	112.1
48	44.2	18.8	08	99.4	42.2	68	154.6	65.6	28	209.9	89.1	88	265.1	112.5
49 50	45. 1	$19.1 \\ 19.5$	09 10	100.3 101.3	42. 6 43. 0	69 70	155. 6 156. 5	66. 0 66. 4	29 30	$\begin{vmatrix} 210.8 \\ 211.7 \end{vmatrix}$	89. 5 89. 9	89 90	· 266. 0 266. 9	112.9 113.3
$\frac{50}{51}$	$\frac{46.0}{46.9}$	19. 9	111	$\frac{101.3}{102.2}$	43. 4	171	157. 4	66.8	231	$\frac{211.7}{212.6}$	90.3	291	$\frac{260.9}{267.9}$	113. 7
52	46. 9	20.3	12	102. 2	43. 4	72	157. 4	67. 2	32	212.6	90. 6	92	268.8	113.7
53	48.8	20. 7	13	104.0	44. 2	73	159. 2	67. 6	33	214.5	91.0	93	269. 7	114.5
54	49.7	21.1	14	104.9	44.5	74	160. 2	68.0	34	215.4	91.4	94	270.6	114.9
55	50.6	21.5	15	105.9	44.9	75	161.1	68.4	35	216.3	91.8	95	271.5	115.3
56	51.5	21.9	16	106.8	45.3	76	162.0	68.8	36	217. 2	92. 2	96	272.5	115.7
57	52.5	22.3	17	107.7	45.7	77	162.9	69.2	37	218.2	92.6	97	273.4	116.0
58 59	53.4 54.3	22. 7 23. 1	18 19	108.6 109.5	$46.1 \\ 46.5$	78 79	163. 8 164. 8	69. 6 69. 9	38 39	219. 1 220. 0	93. 0 93. 4	98 99	$274.3 \\ 275.2$	116.4 116.8
60	55. 2	23. 4	$\frac{19}{20}$	110.5	46. 9	80	165. 7	70.3	40	$\frac{220.0}{220.9}$	93. 4	300	276. 2	117. 2
00	50. 4	20. 1	20	110.0	10.0	30	100.1		10	220.0	00.0	000	2.0.2	117.2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	F.			- F.						*.			. I	
						67° (1	13°, 247	0. 2930	1).					

67° (113°, 247°, 293°).

TABLE 2.

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Difference of Latitude and Departure for 23° (157°, 203°, 337°).

		1	Jinere	ence of .	Lantuu	e and	Depart	ure lor	40 (.	107, 20	, 557).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	277.1	117.6	361	332.3	141.1	421	387.5	164.5	481	442.7	188.0	541	498.0	211.4
02	278.0	118.0	62	333. 2	141.5	22	388.5	164.9	82	443.7	188.4	42	498.9	211.8
03	278.9	118.4	63	334.1	141.8	23	389.4	165. 3	83	444.6	188.8	43	499.8	212.2
04	279.8	118.8	64	335.1	142. 2	24	390.3	165.7	84	445.5	189. 2	44	500.7	212.6
05	280. 8 281. 7	119. 2	65	336.0	142.6	$\frac{25}{26}$	391. 2 392. 1	166.1	85	446. 4 447. 3	189.5	45	501.7	213.0
06 07	281.7	$\begin{vmatrix} 119.6 \\ 120.0 \end{vmatrix}$	66 67	336. 9 337. 8	143. 0 143. 4	$\frac{26}{27}$	393.1	166. 5 166. 8	86 87	447.3	189. 9 190. 2	46 47	502.6	213. 4 213. 8
08	283.5	120.4	68	338.7	143. 8	28	394.0	167. 2	88	449. 2	190. 6	48	504.4	214.2
09	284.4	120.8	69	339.7	144. 2	29	394.9	167.6	89	450.1	191.0	49	505. 3	214.6
10	285.4	121.2	70	340.6	144.6	30	395.8	168.0	90	451.0	191.4	50	506.3	215.0
311	286.3	121.6	371	341.5	145.0	431	396.7	168.4	491	451.9	191.8	551	507.2	215.3
12	287.2	121.9	72	342.4	145.4	32	397. 7	168.8	92	452.9	192. 2	52	508.1	215.6
13	288.1	122.3	73	343.4	145.7	33	398.6	169. 2	93	453.8	192.6	53	509.0	216, 0
14	289. 0	122.7	74	344.3	146.1	34	399.5	169.6	94	454.7	193.0	54	509.9	216.4
15 16	290. 0 290. 9	123.1 123.5	75 76	345. 2 346. 1	146.5 146.9	35 36	400.4	170. 0 170. 4	95	455. 6 456. 6	193. 4 193. 8	55 56	510.9	$216.8 \\ 217.2$
17	290. 9	123.9	77	347.0	147.3	37	402.3	170.4	96 97	457.5	193. 8	57	511. 8 512. 7	$217.2 \\ 217.6$
18	292.7	124.3	78	348.0	147.7	38	403. 2	171.1	98	458.4	194.6	58	513.6	218.0
19	293.6	124.6	79	348.9	148.1	39	404.1	171.5	99	459.3	195.0	59	514.5	218.4
20	294.6	125.0	80	349.8	148.5	40	405.0	171.9	500	460.2	195.4	60	515.5	218.8
321	295.5	125.4	381	350.7	148.9	441	405.9	172.3	501	461.2	195.8	561	516.4	219. 2
22	296.4	125.8	82	351.6	149.3	42	406.9	172.7	02	462.1	196. 2	62	517.3	219.6
23	297.3	126. 2	83	352.6	149.7	43	407.8	173. 1	03	463.0	196.6	63	518. 2	220.0
24	298. 2	126.6	84	353.5	150.0	44	408.7	173.5	04	463.9	197.0	64	519. 2	220.4
$\frac{25}{26}$	299. 2 300. 1	127.0 127.4	85 86	354. 4 355. 3	150.4 150.8	45 46	409. 6 410. 5	173.9 174.3	05	464. 9 465. 8	197.4 $ 197.8 $	65 66	$520.1 \\ 521.0$	220.8 221.2
27	301.0	127. 8	87	356. 2	150.8 151.2	47	411.5	174. 7	06	466.7	198.1	67	521.0	$\begin{array}{c c} 221.2 \\ 221.6 \end{array}$
28	301.9	128. 2	88	357. 2	151.6	48	412.4	175.1	08	467.6	198.5	68	$521.9 \\ 522.8$	222.0
29	302.8	128.6	89	358.1	152.0	49	413.3	175.4	09	468. 5	198.8	69	523.8	222.3
30	303.8	128.9	90	359.0	152.4	50	414.2	175.8	10	469.5	199.3	70	524.7	222.7
331	304.7	129.3	391	359.9	152.8	451	415.2	176.2	511	470.4	199.7	571	525.6	223.1
32	305.6	129.7	92	360.8	153.2	52	416.1	176.6	12	471.3	200.0	72	526.5	223.4
33	306. 5	130.1	93	361. 8	153.6	53	417.0	177.0	13	472.2	200.4	73	527. 4	223.8
34 35	307. 5 308. 4	130. 5 130. 9	94 95	362.7 363.6	154.0 154.3	54 55	417.9 418.8	177.4	14	473.1	200.8	74	528.4	224. 2
36	309.3	131. 3	96	364.5	154. 7	56	419.8	177.8 178.2	15 16	474. 0 475. 0	$\begin{vmatrix} 201.2 \\ 201.6 \end{vmatrix}$	75 76	529.3 530.2	$224.6 \\ 225.0$
37	310. 2	131.7	97	365.4	155. 1	57	420.7	178.6	17	475.9	202.0	77	531.1	225.4
38	311.1	132.1	98	366.4	155.5	58	421.6	179.0	18	476.8	202.4	78	532.0	225.8
39	312.1	132.5	99	367.3	155.9	59	422.5	179.4	19	477.7	202.8	79	533.0	226.2
40	313.0	132.9	400	368. 2	156. 3	60	423.4	179.7	20_	478.6	203.2	80	533.9	226.6
341	313.9	133. 2	401	369.1	156. 7	461	424.4	180. 1	521	479.6	203.6	581	534.8	227.0
42	314.8	133.6	02	370.0	157. 1	62	425.3	180.5	22	480.5	204.0	82	535. 7	227.4
43	315.7	134.0	03	371.0	157.5	63	426. 2	180.9	23	481.4	204.4	83	536.6	227.8
44 45	316.7 317.6	134.4 134.8	04 05	371.9 372.8	157. 9 158. 3	64 65	427.1 428.0	181. 3 181. 7	24 25	482.3 483.2	$204.8 \\ 205.2$	84 85	537. 6 538. 5	$228.2 \\ 228.6$
46	318.5	135. 2	06	373.7	158.6	66	429.0	182. 1	26	484. 2	205.2 205.5	86	539.4	228.0 229.0
47	319.4	135.6	07	374.6	159.0	67	429.9	182. 5	27	485. 1	205. 9	87	540.3	229. 4
48	320.3	136.0	08	375.6	159.4	68	430.8	182.9	28	486. 0	206.3	88	541.2	229.8
49	321.3	136.4	09	376.5	159.8	69	431.7	183.3	29	486.9	206.7	89	542.2	230, 2
50	322, 2	136.8	_10	377.4	160.2	70	432.6	183.7	30	487.8	207.1	90	543.1	230.6
351.	323.1	137. 2	411.	378.3	160.6	471	433.6	184.0	531	488.8	207.4	591	544.0	231.0
52	324.0	137.5		379.3	161.0		434.5	184.4	32	489.7	207.8		544.9	231.3
53 54	$324.9 \\ 325.9$	137.9 138.3	13 14	380. 2 381. 1	161. 4 161. 8	73 74	435. 4 436. 3	$184.8 \\ 185.2$	33 34	490.6 491.5	208. 2 208. 6	93 94	545. 8 546. 8	231.7 232.0
55	326.8	138. 7	15	382.0	162.2	75	437. 2	185. 6	35	491.5	208. 6	95	547.7	232.0 232.4
56	327.7	139.1	16	382.9	162.5	76	438. 2	186.0	36	493.4	209.4	96	548.6	232. 4
57	328.6	139.5	17	383. 9	162.9	77	439. 1	186.4	37	494.3	209.8	97	549.5	233. 2
58	329.5	139.9	18	384.8	163.3	78	440.0	186.8	38	495.2	210.2	98	550.4	233.6
59	330.5	140.3	19	385.7	163. 7	79	440.9	187.2	39	496.1	210.6	99	551.3	234.0
60	331.4	140. 7	20	386.6	164.1	80	441.8	187.6	40	497.1	211.0	600	552.3	234. 4
Di-+	De-	T	D1-1	D :	T	- Di i	-							
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

67°(113°, 247°, 293°).

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TABLE 2.

Difference of Latitude and Departure for 24° (156°, 204°, 336°).

		D	петеп	ice or Ta	titude	and De	eparture	101 24	(100	, 2041, 3	550-).			
Dist. Lat. Dep. Dist. Lat. Dep. Dist. Lat.									Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.4	61	55. 7	24.8	121	110.5	49. 2	181	165.4	73.6	241	220. 2	98.0
$\tilde{2}$	1.8	0.8	62	56.6	25. 2	22	111.5	49.6	82	166.3	74.0	42	221.1	98.4
3	2.7	1.2	63	57.6	25.6	23	112.4	50.0	83	167.2	74.4	43	222.0	98.8
4	3.7	1.6	64	58.5	26.0	24.	113. 3	50.4	84	168.1	74.8	44	222.9	99. 2
5	4.6	2.0	65	59.4	26.4	25	114.2	50.8	85	169.0	75. 2	45	223.8	99.7
6	5.5	2.4	66	60.3	$26.8 \\ 27.3$	$\frac{26}{27}$	115. 1 116. 0	$51.2 \\ 51.7$	86	169.9 170.8	75.7	46 47	$\begin{bmatrix} 224.7 \\ 225.6 \end{bmatrix}$	100.1
7 8	$\frac{6.4}{7.3}$	$\frac{2.8}{3.3}$	67 68	61.2 62.1	$\frac{27.3}{27.7}$	28	116. 0	52.1	87 88	170.8	$76.1 \\ 76.5$	48	226.6	100. 9
9	8.2	3. 7	69	63. 0	28. 1	29	117.8	52.5	89	172.7	76.9	49	227.5	101.3
10	9.1	4.1	70	63. 9	28.5	30	118.8	52.9	90	173.6	77.3	50	228.4	101.7
11	10.0	4.5	71	64.9	28.9	131	119.7	53. 3	191	174.5	77.7	251	229. 3	102.1
12	11.0	4.9	$7\overline{2}$	65.8	29.3	32	120.6	53.7	92	175.4	78.1	52	230.2	102.5
13	11.9	5.3	73	66.7	29.7	33	121.5	54.1	93	176.3	78.5	53	231.1	102.9
14	12.8	5.7	74	67.6	30.1	34	122.4	54.5	94	177. 2	78.9	54	232.0	103.3
15	13.7	6. 1	75	68. 5	30.5	35	123.3	54.9	95	178.1	79.3	55	233.0	103.7
16	14.6	6.5	76	69.4	30.9	36	124. 2	55.3	96	179.1	79.7	56	233. 9	104.1
17	15.5	$6.9 \\ 7.3$	77	70.3 71.3	31.3 31.7	37 38	125.2 126.1	55.7 56.1	97 98	180. 0 180. 9	80.1	57 58	234. 8 235. 7	104. 5 104. 9
18 19	$16.4 \\ 17.4$	7.7	78 79	72. 2	32.1	39	120.1 127.0	56.5	99	181.8	80. 9	59	236. 6	105.3
20	18.3	8.1	80	73. 1	32. 5	40	127. 9	56.9	200	182.7	81.3	60	237.5	105.8
$\frac{20}{21}$	$\frac{10.0}{19.2}$	8.5	$\frac{-81}{81}$	$\frac{74.0}{74.0}$	32. 9	141	128.8	57.3	201	183.6	81.8	261	238. 4	106. 2
22	20. 1	8.9	82	74.9	33. 4	$4\hat{2}$	129.7	57.8	02	184.5	82. 2	62	239.3	106.6
23	21.0	9.4	83	75.8	33.8	43	130.6	58. 2	03	185.4	82.6	63	240.3	107.0
24	21.9	9.8	84	76. 7	34. 2	44	131.6	58.6	04	186.4	83.0	64	241.2	107.4
25	22.8	10.2	85	77.7	34.6	45	132.5	59.0	05	187.3	83.4	65	242.1	107.8
26	23.8	10.6	86	78.6	35.0	46	133.4	59.4	06	188.2	83.8	66	243.0	108. 2
27	24. 7	11.0	87	79. 5 80. 4	35. 4 35. 8	47 48	134.3 135.2	59.8 60.2	07 08	189. 1 190. 0	84. 2	67 68	243. 9 244. 8	108.6 109.0
28 29	25.6 26.5	11. 4 11. 8	88 89	81.3	36. 2	49	136. 1	60.6	09	190. 9	85.0	69	245.7	109.4
30	27. 4	12. 2	90	82. 2	36.6	50	137. 0	61.0	10	191.8	85.4	70	246.7	109.8
31	28.3	12.6	91	83.1	37.0	151	137.9	61.4	211	192.8	85.8	271	247.6	110.2
32	29. 2	13.0	92	84.0	37.4	52	138.9	61.8	12	193.7	86. 2	72	248.5	110.6
33	30. 1	13.4	93	85.0	37.8	53	139.8	62. 2	13	194.6	86.6	73	249.4	111.0
34	31.1	13.8	94	85.9	38. 2	54	140.7	62.6	14	195.5	87.0	74	250.3	111.4
35 36	$32.0 \\ 32.9$	$14.2 \\ 14.6$	95 96	86. 8 87. 7	38. 6 39. 0	55 56	$141.6 \\ 142.5$	63. 0 63. 5	15 16	196. 4 197. 3	87.4 87.9	$\begin{array}{c} 75 \\ 76 \end{array}$	251. 2 252. 1	111.9 112.3
37	33. 8	15.0	97	88.6	39.5	57	143. 4	63. 9	17	198. 2	88.3	77	253.1	112.7
38	34.7	15.5	98	89. 5	39.9	58	144.3	64.3	18	199. 2	88.7	78	254.0	113.1
39	35.6	15.9	99	90.4	40.3	59	145.3	64.7	19	200.1	89.1	79	254.9	113.5
40	36. 5	16.3	100	91.4	40.7	60	146. 2	65.1	20	201.0	89.5	80	255.8	113.9
41	37.5	16. 7	101	92.3	41.1	161	147.1	65. 5	221	201.9	89. 9	281	256.7	114.3
42	38.4	17. 1	02	93. 2	41.5	62	148.0	65.9	22	202.8	90.3	82	257.6	114.7
43	39.3	17.5	03	94.1	41.9	63	148.9 149.8	66.3	$\begin{array}{c c} 23 \\ 24 \end{array}$	203.7	90.7	83 84	258. 5 259. 4	115. 1 115. 5
44 45	40.2 41.1	17.9 18.3	04 05	95. 0 95. 9	42. 3	64 65	150.7	66.7	$\frac{24}{25}$	205.5	91.1	85	260.4	115. 9
46	42.0	18.7	06	96.8	43.1	66	151.6	67.5	$\frac{25}{26}$	206.5	91.9	86	261.3	116.3
47	42. 9	19.1	07	97.7	43.5	67	152.6	67. 9	27	207. 4	92. 3	87	262. 2	116.7
48	43. 9	19.5	08	98.7	43.9	68	153. 5	68.3	28	208.3	92.7	88	263.1	117.1
-49	44.8	19.9	09	99.6	44.3	69	154.4	68.7	29	209. 2	93.1	89	264.0	117.5
50	45.7	20.3	10	100.5	44.7	70	155.3	69.1	30	210.1	93.5	90	264.9	118.0
51	46.6	20. 7	111	101.4	45.1	171	156. 2	69.6	231	211.0	94.0	291	265.8	118.4
52 53	47. 5 48. 4	$21.2 \\ 21.6$	$\begin{array}{c} 12 \\ 13 \end{array}$	102.3 103.2	45. 6 46. 0	72 73	157. 1 158. 0	70. 0 70. 4	$\frac{32}{33}$	211.9	94.4	$92 \\ 93$	266. 8 267. 7	118.8 119.2
54	49.3	22.0	14	103. 2	46.4	74	159.0	70.8	34	213.8	95. 2	94	268.6	119.6
55	50. 2	22.4	15	105.1	46.8	$7\hat{5}$	159. 9	71. 2	35	214.7	95.6	95	269.5	120.0
56	51. 2	22.8	16	106.0	47.2	76	160.8	71.6	36	215.6	96.0	96	270.4	120.4
57	52.1	23. 2	17	106.9	47.6	77	161.7	72.0	37	216.5	96.4	97	271.3	120.8
58	53.0	23.6	18	107.8	48.0	78	162.6	72.4	38	217.4	96.8	98	272. 2 273. 2	121. 2
59 60	53. 9 54. 8	24. 0 24. 4	$\frac{19}{20}$	108. 7 109. 6	48. 4 48. 8	79 80	163. 5 164. 4	72. 8 73. 2	38 40	218.3 219.3	97. 2 97. 6	99 300	273.2	$121.6 \\ 122.0$
00	04.0	27.7	20	100.0	10.0		104. 4	10.2		210.0		500		122.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	· · · ·	1	•		1	·	140 946		```			•		
						nn- 1	14 74h	- /44						

66° (114°, 246°, 294°).

TABLE 2.

Difference of Latitude and Departure for 24° (156°, 204°, 336°).

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Dist. Lat. Dep. Lat. Dep. Dist. Lat. Dep. Dist. Dist. Dep. Dist. Lat. 494.2 220.0384.6 171.2 481 439.4 195.6 541 301 275.0 122.4 361 329.8 146.8 421 220.4 495.1 385.5196.0 02 275.9122.8 62 330.7 147.2 22 171.6 82 440.3 42 496.0 220.9 386.4 123.2 63 331.6 147.6 23 172.183 441.2 196.5 43 03 276.8 442.1 221.3123.7 332.5 148.1 24 387.3 172.584 196.9 44 496.9 277.764 04 221.7 25 388.2 172.9 85 443.0 197.3 45 497.8 333, 4 148.5 05 278.6124.165 26 389.2 173.3 444.0 197.7 46 498.8 222.1 148.9 86 06 279.5124.566 334.3 27 222.5280.4 149.3 390.1 173.7444.9 198.1 499.7 124.9 335.3 87 47 07 67 198.5 500.6 222.928 391.0 445.8 08 281.4 125.3 68 336.2 149.7 174.188 48 $\overline{29}$ 198.9 223.3 89 446.7 49 501.5337.1 150.1 391.9 174.509 282.3 125.7 69 223.7283. 2 126.1 338.0 150.5 30 392.8 174.9 90 447.6199.350 502.4 10 70 150.9 175.3 491 448.6 199.7 551 503.4 224.1126.5 371 338.9 431 393.7 311 284.1339.8 151. 3 151. 7 224.5 32 394.6175.7 92 449.5 200.152 504.3 12 285.0126.9 72200.5 224.9 450.4 505.2285.9 127.3340.7 33 395.6 176.193 53 13 73 152. 1 152. 5 200.9 225.3 451.3 506.1 396.5 176.554 286.8 127.7 74 341.7 34 94 14 225.7 452.2 201.3 507.0 128.1 342.6 35 397.4 176.995 55 15 287.8 75 201.7 226.1 288.7 16 128.5 76 343.5152.9 36 398.3 177.396 453.1 56 507.9226.6 153. 3 153. 7 202.2508.8 289.6 128.9 77 344.4 37 399.2 177.797 454.0 57 17 38 400.1 178.2 98 454.9 202.658 509.7 227.018 290.5 129.378 345.3 154. 2 39 401.0 178.699 455.8 203.0 59 510.6227.4 291.4 129.8 79 346.219 154.6 456.8 203.4 227.8 402.0 60 511.620 292.3130.2 80 347.140 179.0500 457.7 179.4 203.8 512.5 228.2155.0 402.9 501 561 321 293.2 130.6 381 348.1 441 204.2 513.4 228.6 22 23 24 349.0 294.2 131.0 82 155.4 42 403.8 179.8 02 458.6 62 155.8 180.2 204.6 229.0 83 349.9 43 404.7 03 459.5 63 514.3 295.1 131.4 350.8 156.2 405.6180.6 04 460.4 205.064 515.2229.4 296.0131.8 84 44 $156.\overline{6}$ 132. 2 132. 6 181.0 461.3 205.4 516. 1 517. 0 229.8 25 85 351.7 45 406.5 05 65296.9 157. 0 157. 4 462.2 205.8230.2 181.4 06 66 26 297.8 86 352.646 407.4 27 408.3 463.2 206.2 518.0 230.6 133.0 353.5 181.8 07 67 298.7 87 47 28 29 206.6 231.0 299.6 133.4 88 354.4 157.8 48 409.3 182.208 464.1 68 518.9182.6 207.0 231.4 519.8 158.2 410.2 09 465.0 69 300.5 133.8 89 355.4 49 183.0 465.9 207.4 70 520.7 231.8 30 301.5 134.2 90 356.3 158.6 50 411.1 10 207.8 521.6 232. 2 357.2 159.0 412.0 183.4 466.8 571 331 302.4 134.6 391 451 511522.5 159.4 412.9 183.8 467.7 208.272 232.7 12 32 303.3 135.0 92 358.152208.7 523.4 413.8 184.3 13 468.6 73 233, 1 33 304.2 135.4 93 359.0159.8 53 524.3 233.5 469.5 34 135.9 359.9 160.354 414.7 184.7 14 209.1 74 305.1 94 470.5 209.5 525.3 233.9 35 306.0 136.3 95 360.8 160.7 55 415.7 185.115 75 526.2234.3 36 306.9136.7 96 361.8 161.1 56 416.6 185.516 471.4 209.976 210. 3 210. 7 472. 3 473. 2 37 362.7 161.5417.5 185.9 17 77 527.1 234.7 307.9 137.1 97 57 186.3 78 528.0 235.1 38 308.8 137.5 98 363.6 161.9 58 418.4 18 186.7 528.9 235.5 162.3419.3 474.1 211.1 79 39 309.7 137.9 364.559 19 99 475.0 211.5 365.440 310.6 138.3 162.7 60 420.2187.1 20 80 529.8235.9400 163.1 236. 3 341 311.5 138.7 401 366.3 461 421.1 187.5 521 475.9 211.9 581 530.8 212. 3 212. 7 312.4 139.1 367.2 163.5 62 422.0 187.9 22 476.8 82 531.7 236.7 42 02423.0 188.3 $\overline{23}$ 477.8 83 532.6237.1 43 313.3 139.5368.2 163.963 03 164. 3 164. 7 423.9 188.7 24 478.7 213.1 533.5 237.5 369.1 64 84 44 314.3 139.9 04 424. 8 534.4 140.3 25 213.585 237.9 315. 2 05 370.0 65 189.1 479.645 370.9 238.3 140.7 06 165.1 66 425.7 189.5 26 480.5 213.9 86 535.3 46 316.1 214.4 317. 0 317. 9 27 238.8 165.5 426.6189.9 481.4 87 536.2 47 141.1 07 371.8 67 214.8 372.7 165.9 427.5 190.4 28 482.3 88 537.1 239.248 141.5 08 68 166.4 483. 2 49 318.8 142.0 09 373.669 428.4 190.8 29 215.289 538.0 239.6240.0 50 319.7 142.4 10 374.5166.8 70 429.4 191.2 30 484.2 215.6 90 539.0 531 142.8 167.2 430, 3 191.6 485.1 216.0 591 539.9 240.4 351 320.6 411 375.5 471 321.6 143. 2 143. 6 52 376.4 167.6 72 431.2 192.0 32 486.0 216.4 92 540.8 240.8 12 168.0 192.4 33 486.9 216.8 93 541.7 241.2 53 322.5 13 377.3 73 432.1 542.6 323.4 378.2 168.4 192.8 487.8 217.2 54 144.0 14 .74 433.0 34 94 241.6 55 379.1168.8 433.9 193.2 35 488.7 217.6 95 543.5 242.0 324.3144.4 15 75 218.0 544. 4 242.4 56 325.2144.8 16 380.0 169.2 76 77 434.8 193.6 36 489.6 96 326.1 242.8 145.2 380.9 169.6 435.8 194.0 37 490.6 218.4 97 545.4 57 17 436.7 327.0 145.6 381.9 170.0 194.4 491.5 218.8 98 546.3 243.2 58 18 78 38 328.0 492.4 219.2 99 547.2 243.6 59 146.0 19 382.8 170.4 79 437.6 194.8 39 493.3 219.6 600 548.1 244.0 328.9 20 383.7 170.8 80 195.2 40 60 146.4 438.5 Dist. Dist. Lat. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dep.

66° (114°, 246°, 294°).

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TABLE 2.

Difference of Latitude and Departure for 25° (155°, 205°, 335°).

			лиете	ince of i	airuu	anu	Departu	Te lor .	1) 62		, 555).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.4	61	55. 3	25.8	121	109.7	51.1	181	164.0	76.5	241	218.4	101.9
2	1.8	0.8	62	56.2	26. 2	22	110.6	51.6	82	164.9	76.9	42	219.3	102.3
.3	2.7	1.3	63	57.1	26.6	23	111.5	52.0	83	165.9	77.3	43	220.2	102.7
4	3.6	1.7	64	58.0	27.0	24	112.4	52.4	84	166.8	77.8	44	221.1	103. 1
5	4.5	$\begin{array}{ c c c } 2.1 \\ 2.5 \end{array}$	65	58.9	$27.5 \\ 27.9$	25	113.3	52.8	85	167.7	78.2	45	222.0 223.0	103.5
6 7	5. 4 6. 3	$\frac{2.5}{3.0}$	66 67	59.8 60.7	28.3	$\frac{26}{27}$	114. 2 115. 1	53. 2 53. 7	86 87	168.6 169.5	78.6 79.0	46 47	223.0 223.9	104. 0 104. 4
8	7.3	3.4	68	61.6	28.7	.28	116.0	54.1	88	170.4	79.5	48	224.8	104.4
9	8. 2	3.8	69	62.5	29. 2	29	116.9	54.5	89	171.3	79.9	49	225.7	105.2
10	9.1	4. 2	70	63.4	29.6	30	117.8	54.9	90	172.2	80.3	50	226.6	105.7
11	10.0	4.6	71	64.3	30.0	131	118.7	55. 4	191	173.1	80.7	251	227.5	106.1
12	10.9	5.1	72	65.3	30.4	32	119.6	55.8	92	174.0	81.1	52	228.4	106.5
13	11.8	5.5	73	66.2	30.9	33	120.5	56. 2	93	174.9	81.6	53	229.3	106.9
14 15	$12.7 \\ 13.6$	5. 9 6. 3	74 75	67. 1 68. 0	31.3	$\frac{34}{35}$	121.4 122.4	56.6 57.1	94 95	175.8 176.7	82. 0 82. 4	54 55	230. 2 231. 1	107.3 107.8
16	14.5	6.8	76	68.9	32. 1	36	123. 3	57.5	96	177.6	82.8	56	232. 0	108.2
17	15. 4	7. 2	77	69.8	32.5	37	124. 2	57.9	97	178.5	83. 3	57	232.9	108.6
18	16.3	7.6	78	70.7	33.0	38	125. 1	58, 3	98	179.4	83.7	58	233.8	109.0
19	17.2	8.0	79	71.6	33. 4	39	126.0	58.7	99	180.4	84. 1	59	234.7	109.5
_20	18.1	8.5	80	72.5	33.8	40	126.9	59. 2	200	181.3	84.5	60	235.6	109.9
21	19.0	8.9	81	73.4	34. 2	141	127.8	59.6	201	182.2	84.9	261	236.5	110.3
22 23	$\frac{19.9}{20.8}$	9.3	82	74.3	34.7	42	128.7	60.0	02	183.1	85.4	62	237.5	110.7
$\begin{vmatrix} 23 \\ 24 \end{vmatrix}$	20.8	9. 7 10. 1	83 84	75. 2 76. 1	35. 1 35. 5	43 44	129.6 130.5	60.4	03 04	184. 0 184. 9	85.8	63 64	238. 4 239. 3	111.1 111.6
25	$\frac{21.3}{22.7}$	10.6	85	77. 0	35. 9	45	131. 4	61.3	05	185.8	86.6	65	240. 2	112.0
26	23. 6	11.0	86	77. 9	36.3	46	132. 3	61.7	06	186. 7	87.1	66	241.1	112.4
27	24.5	11.4	87	78.8	36.8	47	133. 2	62.1	07	187.6	87.5	67	242.0	112.8
28	25.4	11.8	88	79.8	37.2	48	134.1	62.5	08	188.5	87.9	68	242.9	113.3
29	26.3	12.3	89	80.7	37.6	49	135.0	63.0	09	189.4	88.3	69	243.8	113.7
30	$\frac{27.2}{20.1}$	12.7	90	81.6	38.0	50	135.9	63.4	10	190.3	88.7	70	244.7	114.1
31 32	28. 1 29. 0	13. 1 13. 5	$\frac{91}{92}$	82. 5 83. 4	38. 5 38. 9	$\begin{array}{c} 151 \\ 52 \end{array}$	136. 9 137. 8	63. 8 64. 2	$\begin{array}{c} 211 \\ 12 \end{array}$	191. 2 192. 1	89. 2 89. 6	$\frac{271}{72}$	$245.6 \\ 246.5$	114.5 115.0
33	29. 9	13. 9	93	84.3	39.3	53	138.7	64. 7	13	193.0	90.0	73	247.4	115.4
34	30.8	14.4	94	85. 2	39.7	54	139.6	65. 1	14	193.9	90.4	74	248.3	115.8
35	31.7	14.8	95	86.1	40.1	55	140.5	65.5	15	194.9	90.9	75	249.2	116.2
36	32.6	15.2	96	87.0	40.6	56	141.4	65. 9	16	195.8	91:3	76	250.1	116.6
37	33.5	15.6	97	87. 9 88. 8	$41.0 \\ 41.4$	57	$142.3 \\ 143.2$	66.4	17	196. 7 197. 6	$91.7 \\ 92.1$	77 78	251.0 252.0	117. 1 117. 5
$\frac{38}{\cdot 39}$	34. 4 35. 3	16. 1 16. 5	98	89.7	41.8	58 59	144.1	$66.8 \\ 67.2$	18 19	198.5	92. 6	79	252.0 252.9	117.9
40	36.3	16.9	100	90.6	42.3	60	145.0	67. 6	20	199.4	93.0	80	253.8	118.3
41	37.2	17.3	101	91.5	42.7	161	145.9	68.0	221	200.3	93.4	281	254.7	118.8
42	38. 1	17.7	02	92.4	43.1	62	146.8	68.5	22	201. 2	93.8	82	255.6	119.2
43	39.0	18.2	03	93.3	43.5	63	147.7	68.9	23	202.1	94.2	83	256. 5	119.6
44	39.9	18.6	04	94.3	44.0	64	148.6	69.3	24	203.0	94.7	84	257.4	120.0
45	40.8	19.0 19.4	05	95. 2	44. 4	65 66	149. 5 150. 4	69.7	25	203.9	95.1	85 86	258.3 259.2	120.4
46 47	41.7 42.6	19.4	06 07	96. 1 97. 0	45. 2	66 67	150.4	70.2 70.6	$\frac{26}{27}$	204. 8 205. 7	95. 5 95. 9	86 87	260. 1	$\begin{vmatrix} 120.9 \\ 121.3 \end{vmatrix}$
48	43.5	20. 3	08	97. 9	45.6	68	152.3	71.0	28	206.6	96.4	88	261.0	121.7
49	44.4	20.7	69	98.8	46.1	69	153.2	71.4	29	207.5	96.8	89	261.9	122.1
50	45.3	21.1	_10	99.7	46.5	70	154. 1	71.8	30	208.5	97.2	90	262.8	122.6
51	46.2	21.6	111	100.6	46.9	171	155.0	72.3	231	209.4	97.6	291	263. 7	123.0
52	47.1	22.0	12	101.5	47.3	72	155.9	72.7	32	210.3	98.0	92		123.4
53 54	48. 0 48. 9	22. 4 22. 8	13 14	102. 4 103. 3	47.8 48.2	73 74	156.8 157.7	73. 1 73. 5	33 34	211. 2 212. 1	98.5 98.9	93 94	265. 5 266. 5	$123.8 \\ 124.2$
55	49.8	$\frac{22.8}{23.2}$	15	103. 3	48.6	75	158.6	74.0	35	213. 0	99.3	95	267.4	124. 2
56	50.8	23. 7	16	105.1	49.0	76	159.5	74. 4	36	213. 9	99.7	96	268.3	125.1
57	51.7	24.1	17	106.0	49.4	77	160.4	74.8	37	214.8	100.2	97	269. 2	125.5
58	52.6	24.5	18	106.9	49.9	78	161.3	75. 2	38	215.7	100.6	98	270.1	125. 9
59	53.5	24.9	19	107.9	50.3	79	162.2	75.6	39	216.6	101.0	99	271.0	126.4
60	54.4	25.4	20	108.8	50.7	80	163.1	76.1	40	217.5	101.4	300	271.9	126.8
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
D150.	Dep.	130.0.	DEG.	Dop.	-					Dop.	1	1	Dop.	
						65° (1	15°, 245	°, 295°).					

65° (115°, 245°, 295°).

Difference of Latitude and Departure for 25°. (155°, 205°, 335°).

			ышег	ence of I	Lantud	eand	Бераги	ure for	20 . (.	100-, 200	, 550).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	272.8	127. 2	361	327.1	152.5	421	381.5	177.9	481	435.9	203. 3	541	490.3	228.6
02	273.7	127. 6	62	328.0	153.0	22	382.4	178.3	82	436.8	203. 7	42	491.2	229.0
03	274.6	128.0	63	329.0	153.4	23	383.3	178.7	83	437.7	204.1	43	492.1	229.4
04	275.5	128.4	64	329.9	153.8	24	384.2	179.2	84	438.6	204.5	44	493.0	229.9
05	276.4	128.9	65	330.8	154. 2	25	385.1	179.6		439.5	204. 9	45	493.9	230.3
06	277.3	129.3	66	331.7	154.6	26	386.0	180.0		440. 4	205. 4	46	494.8	230. 7
07 08	278. 2 279. 1	$\begin{vmatrix} 129.7 \\ 130.1 \end{vmatrix}$	$\begin{array}{c} 67 \\ 68 \end{array}$	332. 6 333. 5	155. 1 155. 5	27 28	387. 0 387. 9	180. 4 180. 9	87 88	441.3 442.2	205. 8 206. 2	47 48	495. 7 496. 6	231. 1 231. 6
09	280.0	130. 1	69	334.4	155. 9	29	388.8	181.3	89	443.1	206.6	49	497.5	232. 0
10	280. 9	131.0	70	335.3	156.3	30	389.7	181.7	90	444.0	207. 1	50	498.4	232. 4
311	281. 8	131.4	371	336.2	156.8	431	390.6	182.1	491	444.9	207.5	551	499.3	232.8
12	282.7	131.8	$7\hat{2}$	337. 1	157. 2	32	391.5	182.5	92	445.9	207. 9	52	500.2	233. 2
13	283.6	132. 2	73	338.0	157.6	33	392.4	183.0	93	446.8	208.3	53	501.1	233.7
14	284.5	132.7	74	338. 9	158.0	34	393.3	183.4	94	447.7	208.7	54	502.0	234.1
15	285.4	133.1	75	339.8	158.5	35	394.2	183.8	95	448.6	209.1	55	503.0	234. 5
16	286.4	133.5	76	340.7	158.9	36	395.1	184. 2	96	449.5	209.6	56	503. 9	235.0
17	287.3	133.9	77	341.6	159. 3	37	396.0	184.7	97	450.4	210.0	57	504.8	235.4
18 19	288. 2 289. 1	134. 4 134. 8	78 79	342. 5 343. 5	159. 7 160. 1	38 39	396.9 397.8	185. 1 185. 5	98 99	451. 3 452. 2	210. 4	58 59	505. 7 506. 6	235. 8 236. 2
20	290. 0	135. 2	80	344. 4	160. 1	40	398.7	185. 9	500	453. 1	211. 3	60	507.5	236. 6
321	290. 9	135. 6	381	345.3	161.0	441	399.6	186.3	501	454.0	211.7	561	508. 4	237.1
22	291.8	136. 1	82	346. 2	161. 4	42	400.6	186.8	02	454.9	212. 1	62	509.3	237. 5
23	292.7	136.5	83	347.1	161.8	43	401.5	187. 2	03	455.8	212.5	63	510.2	237.9
24	293.6	136. 9	84	348.0	162.3	44	402.4	187.6	04	456.7	213. 0	64	511.1	238.3
25	294.5	137.3	85	348.9	162.7	45	403.3	188.0	05	457.7	213.4	65	512.0	238.7
26	295.4	137. 7	86	349.8	163. 1	46	404.2	188.5	06	458.6	213.8	66	512.9	239. 2
27 28	296. 3 297. 2	138. 2	87	350.7	163.5	47	405.1	188.9	07	459.5	214.2	67	513.8	239. 6 240. 1
29	298.1	138. 6 139. 0	88 89	$351.6 \\ 352.5$	163. 9 164. 4	48 49	406. 0 406. 9	189.3 189.7	08 09	460.4	214.7 215.1	$\frac{68}{69}$	514. 8 515. 7	240. 1
30	299. 0	139.4	90	353.4	164.8	50	407.8	190. 1	10	462. 2	215. 5	70	516.6	240. 9
331	300.0	139. 9	391	354.3	165. 2	451	408.7	190.6	511	463.1	215. 9	571	517. 5	241.3
32	300.9	140. 3	92	355.2	165.6	52	409.6	191.0	12	464.0	216. 4	$7\overline{2}$	518.4	241.7
33	301.8	140.7	93	356. 1	166.1	53	410.5	191.4	13	464.9	216.8	73	519.3	242.1
34	302.7	141.1	94	357. 0	166.5	54	411.4	191.8	14	465.8	217. 2	74	520. 2	242.6
35	303.6	141.5	95	358.0	166. 9	55	412.3	192.3	15	466.7	217. 7	75	521.1	243.0
36 37	$304.5 \\ 305.4$	142.0 142.4	96 97°	358. 9 359. 8	167.3 167.7	56 57	413. 2 414. 1	192. 7 193. 1	$\begin{array}{c} 16 \\ 17 \end{array}$	467. 6	$\begin{vmatrix} 218.1\\ 218.5 \end{vmatrix}$	· 76	522.0 522.9	$243.4 \\ 243.8$
38	306.3	142.4	98	360.7	168. 2	58	414.1	193. 1	18	469.4	$\begin{vmatrix} 218.9 \\ 218.9 \end{vmatrix}$	78	523.8	243.8
39	307. 2	143. 2	99	361.6	168.6	59	416.0	194.0	19	470.3	219.3	79	524. 7	244.7
40	308. 1	143.7	400	362. 5	169.0	60	416.9	194.4	20	471.2	219.8	80	525. 6	245.1
341	309.0	144.1	401	363.4	169.4	461	417.8	194.8	521	472.2	220. 2	581	526.5	245.5
42	309.9	144.5	02	364.3	169.9	62	418.7	195. 2	22	473.1	220.6	82	527.4	246.0
43	310.8	144.9	03	365. 2	170.3	63	419.6	195. 6	23	474.0	221.0	83	528.3	246.4
44	311.7	145.4	04	366.1	170.7	64	420.5	196.1	24	474. 9	221.4	84	529.3	246.8
45	312.6	145.8	05	367. 0	171.1	65	421.4	196.5	25	475.8	221. 9	85	530. 2	247.2
46 47	$313.5 \\ 314.5$	146. 2 146. 6	06 07	367. 9 368. 8	171.6 172.0	$\frac{66}{67}$	422.3 423.2	196. 9 197. 3	$\frac{26}{27}$	476. 7 477. 6	222. 3 222. 7	86 87	531. 1 532. 0	247.7 248.1
48	315.4	140.0	08	369.7	172. 4	68	424.1	197.8	28	478.5	223. 2	88	532. 9	248.1 248.5
49	316.3	147.5	09	370.6	172.8	69	425. 0	198. 2	29	479.4	223. 6	89	533.8	248. 9
50	317. 2	147.9	10	371.5	173. 2	70	425.9	198.6	30	480.3	224.0	90	534.7	249.4
351	318.1	148.3	411	372.5	173.7	471	426.8	199.0	531	481.2	224.4	591	535.6	249.8
52	319.0	148.7	12	373.4	174.1	72	427.7	199.4	32	482. 1	224.8	92	536.5	250.2
53	319.9	149.2	13	374.3	174.5	73	428.6	199. 9	33	483.0	225.3	93	537.4	250.6
54 55	320.8	149.6	14	375.2	174.9	74	429.6	200.3	34	483. 9	225.7	94	538.3	251.1
56	$321.7 \\ 322.6$	150. 0 150. 4	$\begin{array}{c c} 15 \\ 16 \end{array}$	$376.1 \\ 377.0$	$ 175.4 \ 175.8 $	75 76	430. 5 431. 4	200.7 201.1	35 36	484. 8 485. 7	226. 1 226. 5	95 96	539. 2 540. 1	$251.5 \\ 251.9$
57	323.5	150. 4	17	377.9	176.8 176.2	77	432.3	201. 1	37	486.7	226. 9	97	541.0	251.9 252.3
58	324. 4	151.3	18	378.8	176.6	78	433. 2	202. 0	38	487.6	227.4	98	541.9	252. 7
59	325.3	151.7	19	379.7	177.0	79	434. 1	202.4	39	488.5	227.8	99	542.8	253.1
60	326.2	152. 1	20	380.6	177.5	80	, 435. 0	202.8	40	489.4	228.2	600	543.8	253.6
-	-													~
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						250 (1	150 045	0 0050	1					

65° (115°, 245°, 295°).

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TABLE 2.

Difference of Latitude and Departure for 26° (154°, 206°, 334°).

-	1						- cpare		(, 20	, 551	/•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0. 4	61	54.8	26. 7	121	108.8	53. 0	181	162.7	79.3	241	216.6	105.6
$\hat{2}$	1.8	0. 9	62	55.7	27. 2	22	109.7	53. 5	82	163. 6	79.8	42	217.5	106. 1
3	2.7	1.3	63	56.6	27.6	23	110.6	53. 9	83	164.5	80.2	43	218. 4	106.5
4	3.6	1.8	64	57.5	28.1	24	111.5	54.4	84	165, 4	80.7	44	219.3	107.0
5	4.5	2. 2	65	58.4	28.5	25	112.3	54.8	85	166.3 167.2	81.1	45	220. 2	107.4
6	5.4	2.6	66	59.3	28.9	26	113.2	55. 2	86	167. 2	81.5	46	221.1	107.8
7	6.3	3.1	67	60. 2	29.4	27	114.1	55.7	87	168.1	82.0	47	1222.0	108.3
8	7. 2	3.5	68	61.1	29.8	28	115.0	56.1	88	169.0	82.4	48	222. 9	108.7
9	8.1	3.9	69	62.0	30. 2	29	115.9	56.5	89	169.9	82.9	49	223. 8	109.2
10	9.0	4.4	70	62.9	30.7	30	116.8	57.0	90	170.8	83.3	50	224.7	109.6
11 12	9, 9	4.8	71	63. 8	31.1	131	117.7	57.4	191	171.7	83.7	251	225.6	110.0
13	10.8 11.7	5.3	72 73	64. 7 65. 6	31. 6 32. 0	32	.118.6	57.9	92	172.6	84.2	52	226.5	110.5
14	12.6	6.1	74	66.5	32. 4	$\frac{33}{34}$	119.5 120.4	58.3	93 94	173.5 174.4	84.6	53	227.4	110.9
15	13.5	6.6	75	67.4	32. 9	35	121. 3	59. 2	95	175.3	85. 0 85. 5	54 55	228. 3 229. 2	111.3 111.8
16	14. 4	7.0	76	68. 3	33. 3	36	122. 2	59.6	96	176.2	85. 9	56	230. 1	111.0
17	15.3	7.5	77	69. 2	33.8	37	123. 1	60.1	97	177.1	86.4	57	231.0	112. 2 112. 7
18	16. 2	7.9	78	70.1	34. 2	38	124.0	60.5	98	178.0	86.8	58	231.9	113. 1
19	17.1	8.3	79	71.0	34.6	39	124.9	60.9	99	178.9	87.2	59	232.8	113.5
20	18.0	8.8	80	71.9	35. 1	40	125.8	61.4	200	179.8	87.7	60	233. 7	114.0
21	18.9	9. 2	81	72.8	35.5	141	126.7	61.8	201	180.7	88.1	261	234.6	114.4
22	19.8	9.6	82	73.7	35.9	42	127.6	62. 2	02	181.6	88.6	62	235.5	114.9
23	20.7	10.1	83	74.6	36.4	43	128.5	62. 7	03	182.5	89.0	63	236.4	115.3
24	21.6	10.5	84	75.5	36.8	44	129.4	63.1	04	183.4	89.4	64	237.3	115.7
$\frac{25}{26}$	22. 5 23. 4	11. 0 11. 4	85 86	76.4	37.3 37.7	45	130.3	63.6	05	184.3	89.9	65	238. 2	116.2
27	24.3	11.8	87	77.3 78.2	38.1	46 47	131, 2 132, 1	64. 0	06 07	185. 2 186. 1	90.3	66	239.1	116.6
28	25. 2	12.3	88	79.1	38.6	48	133.0	64. 9	08	186. 9	91. 2	67 68	240. 0 240. 9	117. 0 117. 5
29	26.1	12.7	89	80.0	39.0	49	133.9	65. 3	09	187. 8	91.6	69	241.8	117.9
30	27.0	13. 2	- 90	80. 9	39.5	50	134.8	65. 8	10	188.7	92.1	70	242. 7	118.4
31	27.9	13.6	91	81.8	39.9	151	135.7	66. 2	211	189.6	92.5	271	243. 6	118.8
32	28.8	14.0	92	82. 7	40.3	52	136.6	66.6	12	190.5	92.9	72	244.5	119.2
33	29.7	14.5	93	83.6	40.8	53	137.5	67.1	13	191.4	93.4	73	245.4	119.7
34	30.6	14.9	94	84.5	41. 2	54	138.4	67.5	14	192.3	93.8	74	246.3	120.1
35	31.5	15.3	95	85.4	41.6	55	139.3	67. 9	15	193. 2	94.2	75	247. 2	120.6
36 37	32. 4 33. 3	15. 8 16. 2	96 97	86. 3 87. 2	42.1 42.5	$\frac{56}{57}$	140.2 141.1	68.4	16	194.1	94.7	76	248.1	121.0
38	34. 2	16. 7	98	88.1	43. 0	58	142. 0	68. 8 69. 3	17 18	195. 0 195. 9	95. 1 95. 6	77 78	249.0	121.4
39	35. 1	17.1	99	89. 0	43.4	59	142.9	69.7	19	196.8	96.0	79	249. 9 250. 8	$121.9 \\ 122.3$
40	36.0	17.5	100	89.9	43.8	60	143.8	70.1	$\frac{10}{20}$	197. 7	96.4	80	251.7	122. 7
41	36. 9	18.0	101	90.8	44.3	161	144.7	70.6	221	198.6	96.9	281	252.6	123. 2
42	37.7	18.4	02	91.7	44.7	62	145.6	71.0	22	199.5	97.3	82	253. 5	123. 6
43	38.6	18.8	03	92.6	45.2	63	146.5	71.5	23	200.4	97.8	83	254.4	124.1
44	39.5	19.3	04	93.5	45.6	64	147.4	71.9	24	201.3	98.2	84	255.3	124.5
45	40.4	19.7	05	94.4	46.0	65	148.3	72.3	25	202. 2	98.6	85	256.2	124.9
46	41.3	20.2	06	95.3	46.5	66	149.2	72.8	26	203. 1	99.1	86	257. 1	125.4
47 48	$42.2 \\ 43.1$	$20.6 \\ 21.0$	07 08	96. 2	46.9	67 68	150. 1 151. 0	73.2	27	204.0	99.5	87	258.0	125.8
49	44. 0	$\frac{21.0}{21.5}$	08	97. 1 98. 0	47.3 47.8	69	151. 0 151. 9	$73.6 \\ 74.1$	28 29	204. 9 205. 8	99.9	. 88	258. 9 259. 8	126. 3 126. 7
50	44. 9	21.9	10	98.9	48.2	70	152. 8	74. 5	30	206. 7	100. 4 100. 8	89 90	260.7	126. 7 127. 1
51	45.8	22.4	111	99.8	48.7	171	153. 7	75.0	$\frac{30}{231}$	207. 6	$\frac{100.3}{101.3}$	291	261.5	127.6
$5\overline{2}$	46. 7	22.8	12	100.7	49.1	72	154. 6	75. 4	32		101. 3	92	262. 4	128. 0
53	47.6	23.2	13	101.6	49.5	73	155. 5	75.8	33	209.4	102. 1	93	263. 3	128.4
54	48.5	23.7	14	102.5	50.0	74	156.4	76.3	34	210.3	102.6	94	264. 2	128.9
55	49.4	24.1	15	103.4	50.4	75	157. 3	76.7	35	211.2	103.0	95	265.1	129.3
56	50.3	24.5	16	104.3	50.9	76	158.2	77.2	36	212.1	103.5	96	266.0	129.8
57	51.2	25.0	17	105. 2	51.3	77	159.1	77.6	37	213.0	103.9	97	266. 9	130. 2
58 59	52. 1 53. 0	$25.4 \\ 25.9$	18	106. 1 107. 0	51.7 52.2	78	160.0	$78.0 \\ 78.5$	38	213.9	104.3	98	267.8	130.6
60	53.9	26.3	$\frac{19}{20}$	107.0	52. 6	79 80	130. 9 161. 8	78. 9	39 40	$214.8 \\ 215.7$	104. 8 105. 2	300	268. 7 269. 6	131.1
30	00.0	20.0	20	101.0	02.0	00	101.0	10.9	40	210.7	100. 2	300	200.0	131.5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	•	- 1								2-ор.		- 200	Dop.	
1					4	240 /1	100 014	0000	1					

64° (116°, 244°, 296°).

Difference of Latitude and Departure for 26° (154°, 206°, 334).

							- Dopart		(,	,	, .		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	270.5	132.0	361	324.5	158. 3	421	378.4	184.6	481	432. 3	210.9	541	486. 2	237. 2
02	271.4	132.4	62	325. 4	158. 7	22	379.3	185.0	82	433. 2	211.3	42	487. 1	237.6
03	272.3	132.8	63	326. 3	159.1	23	380. 2	185.4	83	434.1	211.7	43	488.0	238.0
04	273. 2	133. 3	64	327. 2	159.6	24	381.1	185.9	84	435.0	212.2	44	488.9	238.5
05	274.1	133.7	65	328. 1	160.0	25	382.0	186.3	85	435.9	212.6	45	489.8	238.9
06	275.0	134.1	66	329.0	160.4	26	382.9	186.7	86	436.8	213.0	46	490.7	239.3
07	275.9	134. 6	67	329.9	160.9	27	383.8	187. 2	87	437.7	213.5	47	491.6	239.8
08	276.8	135.0	68	330.8	161.3	28	384. 7 385. 6	187.6	88	438.6	213.9	48	492.5	240.2
09	277.7	135.5	69	331.7	161.8	29	385.6	188.1	89	439.5	214.4	49	493.4	240.7
10	278.6	135.9	70	332.6	162.2	30	386.5	188.5	90	440.4	214.8	50	494.3	241.1
311	279.5	136.3	371	333. 5	162.6	431	387.4	188.9	491	441.3	215.2	551	495.2	241.5
12	280.4	136.8	72	334.4	163.1	32	388.3	189.4	92	442.2	215.7	52	496.1	242.0
13	281.3	137. 2	73	335.3	163.5	33	389. 2	189.8	93	443.1	216.1	53	497.0	242.4
14	282. 2	137. 7	74	336. 2	164.0	34	390.1	190.3	94	444.0	216.6	54	497.9	242.9
15	283. 1	138. 1	75	337.1	164.4	35	391.0	190.7	95	444.9	217.0	55	498.8	243.3
16	284.0	138.5	76	338.0	164.8	36	391.9	191.1	96	445.8	217.4	56	499.7	243.7
17	284.9	139.0	77	338. 9	165.3	37	392.8	191.6	97	446.7	217.9	57	500.6	244.2
18	285.8	139.4	78	339.8	165.7	38	393.7	192.0	98	447.6	218.3	58	501.5	244.6
19	286.7	139.8	79	340.7	166.2	39	394.6	192.4	99	448.5	218.7	59	502.4	245.0
20	287.6	140.3	80	341.5	166.6	40	395.5	192.9	500	449.4	219.2	60	503.3	245.5
321	288.5	140.7	381	342.4	167.0	441	396.4	193.3	501	450.3	219.6	561	504. 2	245.9
22	289. 4	141.2	82	343.3	167.5	42	397.3	193,8	02	451.2	220.1	62	505.1	246. 4
23	290.3	141.6	83	344.2	167.9	43	398.2	194. 2	03	452.1	220.5	63	506.0	246.8
24	291.2	142.0	84	345. 1	168.3	44	399.1	194.7	04	453.0	221.0	64	506.9	247.3
25	292.1	142.5	85	346.0	168.8	45	400.0	195.1	05	453.9	221.4	65	507.8	247.7
26	293.0	142.9	86	346.9	169.2	46	400.9	195.5	06	454.8	221.8	66	508.7	248.1
27	293. 9	143. 4	87	347.8	169.7	47	401.8	196.0	07	455.7	222.3	67	509.6	248.6
28	294.8	143.8	88	348.7	170.1	48	402.7	196.4	08	456.6	222.7	68	510.5	249.0
29	295.7	144.2	89	349.6	170.5	49	403.6	196.8	09	457.5	223. 1	69	511.4	249.4
30	296. 6	144.7	90	350.5	171.0	50	404.5	197.3	10	458.4	223.6	70	512.3	249.9
331	297.5	145.1	391	351.4	171.4	451	405.4	197.7	511	459.3	224.0	571	513. 2	250.3
32	298.4	145.6	92	352.3	171.8	52	406.3	198.1	12	460.2	224.4	72	514.1	250.8
33	299.3	146.0	93	353. 2	172.3	53	407. 2	198.6	13	461.1	224.9	73	515.0	251. 2
34	300. 2	146.4	94	354.1	172.7	54	408.1	199.0	14	462.0	225. 3	74	515.9	251.6
35	301.1	146.9	95	355.0	173. 2	55	409.0	199.5	15	462.9	225.8	75	516.8	252.1
36	302.0	147.3	96	355. 9	173.6	56	409.9	199. 9	16	463.8	226. 2	76	517.7	252.5
37	302. 9	147. 7	97	356.8	174.0	57	410.8	200.3	17	464.7	226. 6	77	518.6	252.9
38 39	303.8	148.2	98 99	357.7	174.5	58	411.7	200. 8 201. 2	18	465.6	227.1 227.5	78	519.5	253.4
40	304. 7 305. 6	148.6 149.0	400	358.6 359.5	174.9	59 60	412. 6 413. 5	201. 7	$\frac{19}{20}$	466.5	$\begin{vmatrix} 227.3 \\ 228.0 \end{vmatrix}$	79 80	520.4 521.3	253.8 254.3
					175.4					467.4				
341	306.5	149.5	401	360.4	175.8	461	414.4	202.1	521	468. 3	228. 4	581	522. 2	254.7
42 43	307. 4 308. 3	149.9 150.4	$02 \\ 03$	361.3 362.2	176. 2 176. 7	62	415. 2	202. 5 203. 0	$\frac{22}{23}$	469.2	228. 8 229. 3	82	523.1 524.0	255.1
44	309. 2	150. 4	04	363. 1	177.1	63 64	416. 1 417. 0	203. 4	$\frac{23}{24}$	470. 1 471. 0	229.5 229.7	83 84	524.0 524.9	255.6 256.0
45	310. 1	151. 2	05	364. 0	177.5	65	417.9	203. 4	25	471. 9	230. 1	85	525.8	256.4
46	311. 0	151. 7	06	364. 9	178.0	66	418.8	204. 3	$\frac{26}{26}$	472.8	230. 6	86	526.7	256. 9
47	311. 9	152. 1	07	365.8	178.4	67	419.7	204. 7	27	473.7	231. 0	87	527.6	257.3
48	312.8	152.6	08	366.7	178. 9	68	420.6	205. 2	28	474.6	231.5	88	528.5	257.8
49	313. 7	153.0	09	367.6	179.3	69	421.5	205. 6	29	475.5	231. 9	89	529.4	258. 2
50	314.6	153. 4	10	368.5	179.7	70	422.4	206. 0	30	476.4	232. 3	90	530. 3	258. 6
351	315.5	153.9	411	369.4	180. 2	471	423.3	206.5	531	477.3	232.8	591	531. 2	$\frac{259.1}{259.1}$
52	316. 4	154.3		370.3	180. 6	72	424. 2	206. 9	32	478.2	233. 2	92	532. 1	259.5
53	317. 3	154.7	13	371. 2	181. 1	73	425.1	207.3	33	479.1	233. 6	93	533.0	259. 9
54	318. 2	155. 2	14	372.1	181.5	74	426.0	207.8	34	480.0	234. 1	94	533. 9	260.4
55	319.1	155. 6	15	373.0	181.9	75	426.9	208. 2	35	480.9	234.5	95	534. 8	260.8
56	320.0	156.1	16	373.9	182.4	76	427.8	208.7	36	481.8	235.0	96	535. 7	261.3
57	320.9	156.5	17	374.8	182.8	77	428.7	209.1	37	482.7	235.4	97	536.6	261.7
58	321.8	156. 9	18	375.7	183. 2	78	429.6	209.5	38	483.6	235.8	98	537.5	262. 1
59	322.7	157.4	19	376.6	183.7	79	430.5	210.0	39	484.5	236.3	90	538.4	262.6
60	323.6	157.8	20	377.5	184.1	80	431.4	210.4	40	485.3	236.7	600	539.3	263.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
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64° (116°, 244°, 296°).

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TABLE 2.

Difference of Latitude and Departure for 27° (153°, 207°, 333°).

			Dinere	ence of i	Janiud	e and	Departi	ile for	21 (1	00 , 207	, 550	<i>)</i> ·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.5	61	54.4	27.7	121	107.8	54.9	181	161.3	82.2	241	214. 7	109.4
2	1.8	0.9	62	55.2	28. 1	22	108.7	55.4	82	162. 2	82.6	42	215. 6	109.9
3	2.7	1.4	63	56. 1	28.6	23	109.6	55.8	83	163.1	83.1	43	216.5	110.3
4	3.6	1.8	64	57.0	29. 1	24	110.5	56.3	84	163.9	83.5	44	217.4	110.8
5	4.5	2.3	65	57.9	29.5	25	111.4	56.7	85	164.8	84.0	45	218.3	111.2
6	5.3	2.7	66	58.8	30.0	26	112.3	57. 2	86	165.7	84.4	46	219. 2	111.7
7	6. 2	3.2	67	59.7	30.4	27	113. 2	57. 7	87	166.6	84.9	47	220. 1	112. 1 112. 6
8	7. 1	3.6	68	60.6	30.9	28	114.0	58.1	88	167.5	85.4	48	221.0	112.6
9	8.0	4.1	69	61.5	31. 3	29	114.9	58.6	89	168.4	85.8	49	221.9	113.0
10	8.9	4.5	70	62.4	31.8	30	115.8	59.0	90	169.3	86.3	50	222.8	113.5
11	9.8	5.0	71	63. 3	32. 2	131	116.7	59.5	191	170.2	86.7	251	223.6	114.0
12	10.7	5.4	72	64. 2	32. 7	32	117.6	59.9	92	171.1 172.0 172.9	87.2	52	224.5	114.4
13	11.6	5.9	73	65. 0	33.1	33	118.5	60.4	93	172.0	87.6	53	225.4	114.9
14	12.5	6.4	74	65. 9	33.6	34	119.4	60.8	94	172.9	88.1	54	226.3	115.3
15	13.4	6.8	75	66.8	34.0	35	120.3	61.3	95	173.7 174.6	88.5	55	227. 2	115.8
16	14.3	7.3	76	67. 7	34.5	36	121. 2	61.7	96	174.6	89.0	56	228. 1	116.2
17	15.1	7.7	77	68.6	35.0	37	122.1	62. 2	97	175.5	89.4	57	229.0	116.7
18	16.0	8. 2 8. 6	78	69.5	35. 4 35. 9	38	123.0	62.7	98	$176.4 \\ 177.3$	89.9	58	229.9	117. 1 117. 6
19 20	$16.9 \\ 17.8$	9.1	79 80	70.4 71.3	36.3	39 40	123. 8 124. 7	63. 1	$\frac{99}{200}$	177.3 178.2	90.3 90.8	59 60	230. 8 231. 7	110.0
														118.0
$\begin{array}{c} 21 \\ 22 \end{array}$	18. 7 19. 6	$9.5 \\ 10.0$	81 82	72. 2 73. 1	36. 8 37. 2	141 42	125. 6 126. 5	64. 0 64. 5	$\begin{array}{c} 201 \\ 02 \end{array}$	179. 1 180. 0	91.3 91.7	261	232. 6 233. 4	118.5
23	20. 5	10. 0	83	74.0	37.7	43	120.3	64.9	03	180. 0	92.2	62 63	234.3	118.9 119.4
24	21. 4	10. 4	84	74.8	38.1	44	128.3	65. 4	03	100.0	92.6	64	235. 2	119. 9
$\frac{24}{25}$	22. 3	11.3	85	75.7	38.6	45	129. 2	65. 8	05	181. 8 182. 7	93.1	65	236. 1	120.3
26	23. 2	11.8	86	76.6	39.0	46	130.1	66.3	06	183.5	93.5	66	237. 0	120.8
27	24. 1	12.3	87	77.5	39.5	47	131.0	66. 7	07	184. 4	94.0	67	237. 9	121. 2
28	24. 9	12.7	88	78.4	40.0	48	131.9	67. 2	08	185.3	94.4	68	238.8	121.7
29	25. 8	13. 2	89	79.3	40.4	49	132.8	67.6	09	186. 2	94.9	69	239.7	122. 1
30	26. 7	13.6	90	80. 2	40.9	50	133.7	68. 1	10	187.1	95.3	70	240.6	122.6
31	27.6	14.1	91	81.1	41.3	151	134.5	68.6	211	188.0	95.8	271	241.5	123.0
32	28.5	14.5	92	82.0	41. 8 42. 2	52	135.4	69.0	12	188. 9 189. 8	96.2	72	242.4	123.5
33	29.4	15.0	93	82.9	42.2	53	136.3	69.5	13	189.8	96.7	73	243. 2	123.9
34	30. 3	15.4	94	83.8	42.7	54	137. 2	69.9	14	190.7	97.2	74	244. 1	124.4
35	31. 2	15.9	95	84.6	43.1	55	138.1	70.4	15	191.6 192.5	97.6	75	245.0	124.8
36	32. 1	16.3	96	85.5	43.6	56	139.0	70.8	16	192.5	98.1	76	245.9	125.3
37	33.0	16.8	97	86.4	44.0	57	139.9	71.3	17	193.3	98.5	77	246.8	125.8
38	33. 9	17.3	98	87.3	44.5	58	140.8	71.7 72.2	18	194. 2	99.0	78	247.7	126. 2
39 40	34.7 35.6	17. 7 18. 2	100	88. 2 89. 1	44. 9 45. 4	59 60	141.7 142.6	72.6	19 20	195. 1 196. 0	99.4 99.9	79 80	248.6 249.5	126. 7 127. 1
41	$\frac{36.5}{36.5}$		101	$\frac{-30.1}{90.0}$	45. 9	161	143.5	73.1	$\frac{20}{221}$				250.4	127. 6
42	37.4	18. 6 19. 1	02	90. 9	46.3	62	144.3	73.5		196. 9 197. 8	100.3 100.8	281 82	251.3	127.0
43	38.3	19. 1	03	91.8	46.8	63	145. 2	74.0	$\frac{22}{23}$	197. 8	101.2	83	252.2	128. 0 128. 5
44	39. 2	20.0	03	92. 7	47. 2	64	146. 1	74.5	$\frac{23}{24}$	199.6	101.7	84	253. 0	128. 9
45	40.1	20. 4	05	93.6	47.7	65	147. 0	74.9	25	200.5	102.1	85	253. 9	129.4
46	41.0	20. 9	06	94.4	48. 1	66	147. 9	75. 4	26	201.4	102.6	86	254.8	129.8
47	41.9	21.3	07	95.3	48.6	67	148.8	75.8	27	202. 3	103.1	87	255. 7	130.3
48	42.8	21.8	08	96. 2	49.0	68	149.7	76.3	28	203. 1	103.5	88	256.6	130. 7
49	43.7	22. 2	09	97.1	49.5	69	150.6	76.7	29	204. 0	104.0	89	257.5	131.2
50	44.6	22.7	10	98.0	49.9	70	151.5	77.2	30	204.9	104.4	90	258.4	131.7
51	45.4	23. 2	111	98. 9	50.4	171	152.4	77.6	231	205.8	104.9	291	259. 3	132.1
52	46.3	23.6		99.8	50.8	72	153. 3	78.1	32	206.7	105.3	92	260. 2	132.6
53	47.2	24.1	13	100.7	51.3	73	154.1	78.5	33	207.6	105.8	93	261.1	133.0
54	48.1	24.5	14	101.6	51.8	74	155.0	79.0	34	208.5	106.2	94	262.0	133.5
55	49.0	25.0	15	102.5	52. 2	75	155.9	79.4	35	209. 4	106.7	95	262.8	133.9
56	49.9	25.4	16	103.4	52.7	76	156.8	79.9	36	210.3	107.1	96	263.7	134.4
57	50.8	25.9	17	104. 2	53.1	77	157.7	80.4	37	211. 2	107.6	97	264.6	134.8
58	51. 7 52. 6	26. 3 26. 8	18	105. 1 106. 0	53.6 54.0	78 79	158. 6 159. 5	80.8	38 39	212. I 213. 0	108.0 108.5	98 99	265. 5 266. 4	135. 3 135. 7
59 60	53.5	26.8	19 20	106.0	54. 5	80	160.4	81.3	40	213. 0	108.5	300	267. 3	136. 2
00	00.0	21.2	20	100. 9	07.0	80	100.4	01.7	10	210.0	100.0	300	201.5	100. 2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
Dist.	Dep.	I.R. U.	Dist.	Dep.	Lat.	1 2250.	Dep.	1	Dist.	Dep.	I.A.V.	2150.	Dep.	Dav.
						63° (1	170 249	0 2970)					

63° (117°, 243°, 297°).

Difference of Latitude and Departure for 27° (153°, 207°, 333°).

			Dinere	ence of J	Latitud	e and	Departi	116 101	21 (1	.00 , 201	, 500)•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	268. 2	136. 7	361	321.7	163.9	421	375. 1	191.1	481	428.6	218.3	541	482.0	245.6
02	269. 1	137. 1	62	322.5	164. 4	22	376.0	191.6	82	429.4	218.8	42	482.9	246.1
03	270.0	137. 6	63	323.4	164.8	23	376.9	192.0	83	430.3	219.2	43	483.8	246.5
04	270.9	138.0	64	324.3	165.3	24	377.8	192.5	84	431.2	219.7	44	484.7	247.0
05	271.8	138.5	65	325.2	165.7	25	378.7	193.0	85	432.1	220.1	45	485.6	247.4
06	272.7	138.9	66	326. 1	166. 2	26	379.6	193.4	86	433.0	220.6	46	486.4	247.9
07	273.5	139.4	67	327.0	166. 6	27	380.5	193.9	87	433.9	221. 1	47	487.3	248.4
08	274.4	139.8	68	327.9	167.1	28	381.4	194.3	88	434.8	221.5	48	488.2	248.8
09	275.3	140.3	69	328.8	167.5	. 29	382.2	194.8	89	435. 7	222.0	49	489.1	249. 2
10	276. 2	140. 7	70	329.7	168.0	30_	383.1	195.2	90	436.6	222.4	50	490.0	249.7
311	277.1	141.2	371	330.6	168. 4	431	384.0	195.7	491	437.5	222.9	551	490.9	250. 1
12	278.0	141.7	$\frac{72}{2}$	331.5	168.9	32	384.9	196.1	92	438. 3	223.3	$\frac{52}{50}$	491.8	250.6
13	278.9	142.1	73	332.3	169.3	33	385.8	196.6	93	439. 2	223.8 224.2	53	492. 7 493. 6	251.0
14	279.8	142.6	74	333.2	169.8	34	386.7	197. 0	94	440.1	224. 2	54	493. 6	$251.5 \\ 252.0$
15	280.7	143.0	75	334.1	170.3	35	387. 6 388. 5	197. 5 197. 9	95 96	441.0 441.9	225. 2	55 56	495.4	252. 4
16	281.6	143.5	76	335. 0 335. 9	170. 7 171. 2	$\frac{36}{37}$	389.4	198. 4	97	442.8	225.6	57	496.3	252. 9
17 18	$282.5 \\ 283.3$	143. 9 144. 4	77 78	336.8	171.6	38	390.3	198. 9	98	443.7	226.0 226.1	58	497.2	253. 3
19	284. 2	144. 8	79	337.7	172.1	39	391.2	199.3	99	444.6	226.5	59	498.1	253.8
20	285. 1	145.3	80	338.6	172.5	40	392.0	199.8	500	445.5	227.0	60	499.0	254. 2
321	286. 0	$\frac{110.0}{145.7}$	381	339.5	173. 0	441	392.9	200. 2	501	446. 4	227.5	561	499.8	254.7
22	286. 9	146. 2	82	340.4	173. 4	42	393.8	200. 7	02	447.3	227. 9	62	500.7	255. 1
23	287.8	146. 6	83	341.3	173. 9	43	394.7	201.1	03	448. 2	228.4	63	501.6	255.6
24	288. 7	147.1	84	342.1	174.3	44	395.6	201. 6	04	449.0	228.8	64	502.5	256.0
$2\hat{5}$	289.6	147. 6	85	343.0	174.8	45	396.5	202.0	05	449.9	229.3	65	503.4	256.5
26	290.5	148.0	86	343.9	175.2	46	397.4	202.5	06	450.8	229.8	66	504.3	257.0
27	291.4	148.5	87	344.8	175.7	47	398.3	202.9	07	451.7	230.2	67	505.2	257.4
28	292.3	148.9	88	345.7	176.2	48	399.2	203.4	08	452.6	230.6	68	506.1	257.9
29	293.2	149.4	89	346.6	176.6	49	400.1	203.8	09	453.5	231.0	69	507.0	258.3
30	294.0	149.8	90	347.5	177.1	_ 50	401.0	204.3	10	454.4	231.5	70	507.9	258.8
331	294. 9	150.3	391	348. 4	177.5	451	401.8	204.7	511	455.3	231.9	571	508.7	259.2
32	295.8	150.7	92	349.3	178.0	$\frac{52}{52}$	402.7	205. 2	12	456. 2	232.4	72	509.6	259.7
33	296. 7	151. 2	93	350. 2	178.4	53	403.6	205. 7	13	457.1	232. 9	73	510.5	260.1
34	297.6	151.6	94	351.1	178.9	54	404.5	206.1	14 15	458.0	233. 3 233. 8	74 75	511. 4 512. 3	260.6
35 36	298. 5 299. 4	152.1 152.5	95 96	352. 0 352. 8	179.3 179.8	55 56	405. 4 406. 3	206. 6 207. 0	16	458. 8 459. 7	234. 2	76	513. 2	$261.1 \\ 261.5$
37	300.3	153.0	97	353.7	180. 2	57	407. 2	207.5	17	460.6	234. 7	77	514.1	262. 0
38	301.2	153. 5	98	354.6	180. 7	58	408.1	207. 9	18	461.5	235. 2	78	515.0	262.4
39	302. 1	153. 9	99	355.5	181. 2	59	409.0	208. 4	19	462.4	235. 7	79	515.9	262. 9
40	302.9	154. 4	400	356.4	181.6	60	409.9	208.8	20	463. 3	236.1	80	516.8	263.4
341	303.8	154.8	401	357.3	182. 1	461	410.8	209.3	521	464. 2	236.6	581	517.7	263.8
42	304. 7	155.3	02	358. 2	182.5	62	411.6	209.8	22	465. 1	237.0	82	518.5	264.3
43	305.6	155.7	03	359.1	183. 0	63	412.5	210. 2	23	466.0	237.5	83	519.4	264.7
44	306.5	156. 2	04	360.0	183.4	64	413.4	210.7	24	466.9	237.9	84	520.3	265.2
45	307.4	156.6	05	360.9	183.9	65	414.3	211.1	25	467.8	238.4	85	521. 2	265.6
46	308.3	157.1	06	361.8	184.3	66	415.2	211.6	26	468.7	238.8	86	1522.1	266.0
47	309.2	157.5	07	362.6	184.8	67	416.1	212.0	27	469.5	239.3	87	523. 0 523. 9	266.5
48	310.1	158.0	08	363.5	185. 2	68	417.0	212.5	28	470.4	239.7	88	523.9	267. 0
49	311.0	158.5	09	364.4	185. 7	69	417.9	212.9	29	471.3	240. 2	89	524.8	267. 4
50	311.9	158. 9	10	365.3	186.1	70	418.8	213.4	30_	472. 2	240.6	90	525.7	267.9
351	312.7	159.4	411	366. 2	186.6	471	419.7	213.8	531	473. 1	241.1	591	526.6	268.3
52	313.6	159.8		367.1	187.1		420.6	214. 3		474.0	241.5		527.5	268.8
53	314.5	160. 3	13	368.0	187.5	73	421.4	214.7	33	474.9	242.0	93	528.4	269. 2
54	315.4	160.7	14	368.9	188.0	74	422.3	215. 2	34	475.8	242.4	94	529.3	269.7
55 56	316.3	161. 2	15	369.8	188.4	75 76	423. 2	215. 7	35	476.7	242.9	95 96	530.1	270. 1 270. 6
56 57	317. 2 318. 1	161. 6 162. 1	16 17	370. 7 371. 6	188. 9 189. 3	76 77	424.1 425.0	$\begin{vmatrix} 216.1\\ 216.6 \end{vmatrix}$	$\frac{36}{37}$	477. 6 478. 4	$\begin{vmatrix} 243.4 \\ 243.8 \end{vmatrix}$	96 97	531. 0 531. 9	270.6 271.1
58	319.0	162. 1	18	371.0	189.8	78	425. 9	217. 0	38	479.3	244.3	98	532.8	271.5
59	319.9	163.0	19	373.3	190. 2	79	426.8	217.5	39	480. 2	244. 7	99	533. 7	272. 0
60	320.8	163. 4		374.2	190. 7	80	427.7	217. 9	40	481.1	245. 2	600	534.6	272.4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
		1		1 -1.			1	1	·	1	1			

63° (117°, 243°, 297°).

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TABLE 2.

Difference of Latitude and Departure for 28° (152°, 208°, 332°).

		-	рицег	ence or .	Lantuu	e and	рераги	ire for	20" (1	.52-, 208	332).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.5	61	53.9	28.6	121	106.8	56.8	181	159.8	85.0	241	212.8	113. 1
$\frac{2}{3}$	1.8	0.9	62	54.7	29.1	22	107.7	57.3	82	160.7	85.4	42	213.7	113.6
	2.6	1.4	63	55.6	29.6	23	108.6	57.7	83	161.6	85.9	43	214.6	114.1
4	3.5	1.9	64	56.5	30.0	24	109.5	58. 2	84	162.5	86.4	44	215.4	114. 6 115. 0
5	4.4	2.3	65	57.4	30.5	25	110.4	58.7	85	163. 3	86.9	45	216.3	115.0
$\frac{6}{7}$	5.3 6.2	2.8 3.3	66 67	58.3 59.2	31. 0 31. 5	$\frac{26}{27}$	111.3 112.1	59. 2 59. 6	86 87	164. 2 165. 1	87.3	46	217.2	115.5
8	7.1	3.8	68	60.0	31. 9	$\frac{27}{28}$	113.0	60.1	88	166. 0	87.8	47 48	218. 1 219. 0	116. 0 116. 4
9	7. 9	4. 2	69	60. 9	32.4	29	113.9	60.6	89	166. 9	88.7	49	219.9	116.9
10	8.8	4.7	70	61.8	32.9	30	114.8	61.0	90	167.8	89. 2	50	220.7	117.4
11	9.7	5.2	71	62.7	33. 3	131	115.7	61.5	191	168.6	89.7	251	221.6	117.8
12	10.6	5.6	$7\hat{2}$	63.6	33.8	32	116.5	62.0	92	169.5	90.1	52	222.5	118.3
13	11.5	6.1	73	64.5	33. 8 34. 3	33	117.4	62.4	93	170.4	90.6	53	222. 5 223. 4	118.3 118.8
14	12.4	6.6	74	65.3	34.7	34	118.3	62.79	94	171.3	91.1	54	224.3	119.2
15	13. 2	7.0	75	66. 2	35. 2 35. 7	35	119.2	63.4	95	172. 2	91.5	55	225. 2	119. 7 120. 2
16	14.1	7.5	76	67. 1	35.7	36	120. 1	63.8	96	173.1	92.0	56	226.0	120. 2
17	15.0	8.0	77	68.0	36.1	37	121.0	64.3	97	173.9	92.5	57	226.9	120.7
18 19	15. 9 16. 8	8. 5 8. 9	78 79	68.9	36. 6 37. 1	$\frac{38}{39}$	121.8 122.7	64.8 65.3	98 99	174.8	93.0	58	227.8	121.1
20	17.7	9.4	80	69. 8 70. 6	37. 6	40	123.6	65.7	200	175. 7 176. 6	93.4 93.9	59 60	228.7 229.6	$121.6 \\ 122.1$
$\frac{20}{21}$	18.5	$\frac{-0.1}{9.9}$	$\frac{-80}{81}$	$\frac{70.5}{71.5}$	38.0	141	$\frac{123.5}{124.5}$	66. 2	201	177.5	94. 4	261	230. 4	$\frac{122.1}{122.5}$
22	19.4	10.3	82	72.4	38.5	42	125. 4	66. 7	02	178.4	94. 8	$\frac{261}{62}$	231. 3	123.0
23	20.3	10.8	83	73.3	39.0	43	126. 3	67.1	03	179.2	95.3	63	232, 2	123.5
24	21.2	11.3	84	74. 2	39.4	44	127.1	67.6	04	180.1	95.8	64	233.1	123.9
$\frac{25}{26}$	22.1	11.7	85	75.1	39.9	45	128.0	68.1	05	181.0	96.2	65	234.0	124.4
26	23.0	12.2	86	75. 9	40.4	46	128.9	68.5	06	181.9	96. 7	66	234.9	124.9
27	23.8	12.7	87	76.8	40.8	47	129.8	69.0	07	182.8	97.2	67	235.7	125.3
$\frac{28}{29}$	$24.7 \\ 25.6$	13.1	88	77. 7 78. 6	41.3 41.8	48	130. 7 131. 6	69.5	08	183.7	97.7	68	236.6	125.8
30	26.5	$\begin{array}{ c c c }\hline 13.6\\14.1\end{array}$	89 90	79.5	42.3	49 50	132. 4	70. 0	09 10	184. 5 185. 4	98.1 98.6	$\frac{69}{70}$	237.5 238.4	126.3 126.8
31	$\frac{27.4}{27.4}$	14. 6	$\frac{-60}{91}$	80.3	42.7	151	133. 3	70.9	$\frac{10}{211}$	186.3	99. 1	271	239.3	127. 2
32	28. 3	15.0	92	81. 2	43.2	52	134. 2	71.4	12	187. 2	99.5	72	240. 2	127.7
33	29.1	15.5	93	82.1	43.7	53	135. 1	71.8	13	188.1	100.0	73	241.0	128.2
34	30.0	16.0	94	83.0	44.1	54	136.0	72.3	14	189.0	100.5	74	241.9	128.6
35	30. 9	16.4	95	83.9	44.6	55	136.9	72.8	15	189.8	100.9	75	242. 8 243. 7	129.1
36 37	$31.8 \\ 32.7$	16.9	96	84.8	45.1	56	137.7	73. 2	16	190.7	101.4	76	243.7	129.6
38.	33. 6	17.4 17.8	97 98	85. 6 86. 5	45. 5 46. 0	57 58	138. 6 139. 5	73. 7 74. 2	17 18	191. 6 192. 5	101.9 102.3	77 78	244. 6 245. 5	130.0
39	34. 4	18.3	99	87.4	46.5	59	140.4	74.6	19	193.4	102. 8	79	246.3	130. 5 131. 0
40	35. 3	18.8	100	88.3	46. 9	60	141.3	75.1	20	194. 2	103.3	80	247. 2	131.5
41	36.2	19.2	101	89.2	47.4	161	142.2	75.6	221	195. 1	103.8	281	248.1	131.9
42	37.1	19.7	02	90.1	47.9	62	143.0	76.1	22	196.0	104. 2	82	249.0	132.4
43	38.0	20.2	03	90.9	48.4	63	143.9	76.5	23	196.9	104.7	83	249.9	132.9
44	38. 8	20.7	04	91.8	48.8	64	144.8	77.0	24	197.8	105.2	84	249. 9 250. 8	133.3
45	39.7	21.1	05	92.7	49.3	65	145.7	77.5	25	198.7	105.6	85	251.6	133.8
$\begin{bmatrix} 46 \\ 47 \end{bmatrix}$	40.6 41.5	$\begin{bmatrix} 21.6 \\ 22.1 \end{bmatrix}$	06 07	93. 6 94. 5	$\begin{vmatrix} 49.8 \\ 50.2 \end{vmatrix}$	66	$146.6 \\ 147.5$	77. 9 78. 4	26	199.5	106.1	86	252. 5 253. 4	134.3
48	42.4	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	08	94.5	50. 2	67 68	147.5	78.4	$\begin{array}{c} 27 \\ 28 \end{array}$	200. 4 201. 3	106. 6 107. 0	87 88	254.3	134. 7 135. 2
49	43.3	23.0	09	96.2	51.2	69	149. 2	79.3	$\frac{20}{29}$	202. 2	107.5	89	255. 2	135. 7
50	44.1	23.5	10	97.1	51.6	70	150. 1	79.8	30	203. 1	108.0	90	256.1	136.1
51	45.0	23.9	111	98.0	52.1	171	151.0	80.3	231	204.0	108.4	291	256. 9	136.6
52	45.9	24.4	12	98.9	52.6	72	151.9	80.7	32	204.8	108.9	92	257.8	137.1
53	46.8	24.9	13	99.8	53.1	73	152.7	81.2	33	205.7	109.4	93	258.7	137.6
54	47.7	25.4	14	100. 7	53.5	74	153.6	81.7	34	206.6	109. 9	94	259.6	138.0
55	48.6	25.8	15	101.5	54.0	75	154.5	82.2	35	207.5	110.3	95	260.5	138.5
56 57	49. 4 50. 3	$\begin{vmatrix} 26.3 \\ 26.8 \end{vmatrix}$	$\begin{array}{c c} 16 \\ 17 \end{array}$	102. 4 103. 3	54. 5 54. 9	76 77	155. 4 156. 3	82. 6 83. 1	36 37	208. 4 209. 3	110.8 111.3	96 97	$261.4 \\ 262.2$	139. 0 139. 4
58	51. 2	$\frac{20.3}{27.2}$	18	104. 2	55. 4	78	157. 2	83.6	38	210.1	111.3 111.7	98	263. 1	139. 4
59	52. 1	$\frac{57.7}{27.7}$	19	105.1	55. 9	79	158.0	84.0	39	211. 0	112. 2	99	264. 0	140.4
60	53.0	28. 2	20	106.0	56.3	80	158.9	84.5	40	211. 9	112.7	300	264. 9	140.8
-						-								
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						620 (1	180 949	0 9080	1					

 62° (118°, 242°, 298°).

Difference of Latitude and Departure for 28° (152°, 208°, 332°).

		1	Juere	ence of .	Lantuc	e and	Depart	ure for	40 (.	102 , 200	5,002	١٠		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	265. 7	141.3	361	318. 7	169.5	421	371.7	197.7	481	424.7	225.8	541	477.7	254.0
02	266.6	141.8	62	319.6	170.0	22	372.6	198.1	82	425. 6	226.3	42	478.6	254.5
03	267. 5	142.3	63	320.5	170.4	23	373.5	198.6	83	426.5	226.8	43	479.4	255.0
04	268.4	142.7	64	321.4	170,9	24	374.3	199.1	84	427.4	227.3	44	480.3	255.5
05	269.3	143. 2	65	322.2	171.4	25	375.2	199.5		428.3	227.7	45	481.1	255.9
06	270.2	143. 7	66	323.1	171.8	26	376.1	200.0	86	429.2	228. 2	46	482.0	256.4
07	271.0	144.1	67	324. 0 324. 9	172. 3 172. 8	27 28	377. 0 377. 9	200.5	87	430. 1 430. 9	228.6 229.1	47 48	482.9 483.8	256. 9 257. 3
08 09	271. 9 272. 8	144. 6 145. 1	68 69	325.8	173. 2	$\frac{26}{29}$	378.8	200. 9	88 89	431.8	229. 6	49	484.7	257.8
10	273. 7	145.5	70	326.7	173. 7	30	379.6	201. 9	90	432.6	230. 0	50	485.6	258. 2
311	274.6	146.0	371	327.5	174.2	431	380.5	202.3	491	433.5	230.5	551	486.5	258. 7
12	275.5	146.5	72	328. 4	174.6	32	381.4	202.8	92	434.4	231.0	52	487.4	259.1
13	276.3	146.9	73	329.3	175.1	33	382.3	203.3	93	435.3	231.4	53	488.3	259.6
14	277.2	147.4	74	330. 2	175.6	34	383. 2	203.8	94	436. 2	231.9	54	489. 2	260.1
15	278.1	147.9	75	331.1	176.1	35	384.1	204. 2	95	437.1	232. 4	55	490.1	260.6
16	279.0	148.4	76	332.0	176.5	36	384.9	204.7	96	437. 9	232.9	56	490. 9 491. 8	261. 0 261. 5
17	279. 9	148.8	77	332.8	177.0	× 37	385.8	$\begin{vmatrix} 205.2\\ 205.6 \end{vmatrix}$	97 98	438. 8 439. 7	233. 4 233. 8	57 58	491.8	262.0
18 19	280. 7 281. 6	149.3 149.8	78 79	333. 7 334. 6	177.5 177.9	38 39	386.7 387.6	206. 1	99	440.6	234.3	59	493.5	262.5
20	282.5	150. 2	80	335.5	178.4	40	388.5	206.6	500	441.5	234.7	60	494.4	262.9
321	283.4	150.7	381	336.4	178.9	441	389.4	207.0	501	442.3	235. 2	561	495.3	263.4
22	284.3	151. 2	82	337.3	179.3	42	390.2	207.5	02	443.2	235.6	62	496.2	263.8
23	285.2	151.6	83	338.1	179.8	43	391.1	208.0	03	444.1	236.1	63	497.1	264.3
24	286.0	152.1	84	339.0	180.3	44	392.0	208.4	04	445.0	236.6	64	498.0	264.7
25.	286.9	152.6	85	339.9	180.8	45	392.9	208.9	05	445.9	237.1	65	498.9	265.2
26	287. 8 288. 7	153.1	86	340.8	181.2	46	393. 8 394. 6	209.4	06	446.8 447.6	$\begin{vmatrix} 237.5 \\ 238.0 \end{vmatrix}$	66	499. 8 500. 7	265.7
27 28	289.6	153.5 154.0	87 88	341.7 342.6	181. 7 182. 2	47 48	395.5	209.9 210.3	07 08	448.5	238.5	67 68	501.6	266. 2 266. 6
29	290.5	154.5	89	343. 4	182.6	49	396.4	210.8	09	449.4	239.0	69	502.4	267. 1
30	291.3	154.9	90	344.3	183.1	50	397.3	211.3	10	450.3	239.4	70	503.3	267.6
331	292.2	155.4	391	345. 2	183.6	451	398. 2	211.7	511	451.2	239.9	571	504.2	268.0
32	293.1	155.9	92	346.1	184.0	52	399.1	212. 2	12	452.1	240. 4	72	505.1	268.5 269.0
33 34	294. 0 294. 9	156.3 156.8	93	$347.0 \\ 347.9$	184. 5 185. 0	53 54	399. 9 400. 8	212. 7 213. 1	13	452. 9 453. 8	240.8 241.3	73 74	505. 9 506. 8	$\begin{vmatrix} 269.0 \\ 269.4 \end{vmatrix}$
35	295.8	150.8	94 95	348.7	185.4	55	400.8	213. 1	14 15	454.7	241.8	75	507. 7	269. 9
36	296.6	157.7	96	349.6	185. 9	56	402.6	214.1	16	455.6	242. 2	76	508.6	270.4
37	297.5	158.2	97	350.5	186.4	57	403.5	214.6	17	456.4	242.7	77	509.4	270.9
38	298.4	158.7	98	351.4	186.9	58	404.4	215.0	18	457.3	243.2	78	510.3	271.3
39	299.3	159. 2	99	352.3	187.3	59	405. 2	215.5	19	458.2	243.7	79	511.2	271.8
40	300.2	159.6	400	353.1	187.8	60	406.1	216.0	20	459.1	244.1	80	512.1	272.3
341	301.0	160.1	401	354.0	188.3	461	407.0	216.4	521	460.0	244.6	581	513.0	272.7
42 43	301. 9 302. 8	160. 6 161. 0	02	354. 9 355. 8	188. 7 189. 2	62 63	407. 9	216.9 217.4	$\frac{22}{23}$	460. 9 461. 8	245.0 245.5	82 83	513. 9 514. 8	273. 2 273. 7
44	303. 7	161.5	04	356.7	189. 7	64	409.7	217. 8	24	462.7	246. 0	84	515. 7	274. 2
45	304.6	162.0	05	357.6	190.1	65	410.5	218.3	25	463.5	246.5	85	516.5	274.7
46	305.5	162.4	06	358. 4	190.6	66	411.4	218.8	26	464.4	246.9	86	517.4	275.1
47	306.4	162.9	07	359.3	191.1	67	412.3	219. 2	27	465.3	247.4	87	518.3	275.5
48	307. 2	163.4	08	360. 2	191.5		413.2	219.7	28	466.2	247.9	88	519.2	276.0
49 50	308. 1 309. 0	163. 8 164. 3	09 10	361. 1 362. 0	192.0 192.5	69 70	414. 1 415. 0	$\begin{vmatrix} 220.2 \\ 220.7 \end{vmatrix}$	29 30	467. 1 468. 0	$248.3 \\ 248.8$	89 90	$520.1 \\ 521.0$	276.5
351	309. 9	164. 8	411	362.9	193.0	471	415.8	$\frac{220.7}{221.1}$	531	468. 9	$\frac{248.8}{249.3}$	591	$\frac{521.0}{521.8}$	$\frac{277.0}{277.4}$
52	310.8	165.3		363.7	193.4		416. 7	221.1	32	469.8	249. 8		521.8	277.9
53	311.7	165. 7	13	364. 6	193. 9	73	417.6	222.1	33	470.7	250. 2	93	523.5	278.4
54	312.5	166.2	14	365.5	194.4	74	418.5	222.5	34	471.5	250.7	94	524.4	278.8
55	313.4	166.7	15	366.4	194. 8	75	419.4	223.0	35	472.4	251.1	95	525.3	279.3
56 57	314.3	167.1	16	367.3	195.3	76	420.3	223.5	36	473.3	251.6	96	526. 2	279.8
58	315. 2 316. 1	167. 6 168. 1	17 18	368. 2 369. 0	195.8 196.2	77 78	$421.1 \\ 422.0$	223. 9 224. 4	37 38	$474.2 \\ 475.1$	$252.1 \\ 252.6$	97 98	527.1 528.0	280. 3 280. 8
59	316.9	168.5	19	369.9	196. 7	79	422.0	224. 4	39	476.0	253.1	99	528.9	281.3
60	317.8	169.0	20	370.8	197. 2	80	423.8	225.3	40	476.8	253. 6	600	529.8	281.7
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						62° (1	18° 242	0 2980).					

 62° (118°, 242°, 298°).

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TABLE 2.

Difference of Latitude and Departure for 29° (151°, 209°, 331°).

			Dinere	ence or .	Dantuu	e and	Departi	101	20 (101 , 20).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.5	61	53. 4	29.6	121	105.8	58.7	181	158. 3	87.8	241	210.8	116.8
$\hat{2}$	1.7	1.0	62	54. 2	30.1	22	106.7	59. 1	82	159. 2	88. 2	42	211.7	117.3
3	2.6	1.5	63	55.1	30.5	23	107.6	59.6	83	160.1	88.7	43	212.5	117.8
4	3.5	1.9	64	56.0	31.0	24	108.5	60.1	84	160.9	89.2	44	213. 4	118.3
5	4.4	2.4	65	56.9	31.5 32.0	25	109.3	60.6	.85	161.8	89. 7	45	214.3	118.8
6	5. 2	2.9	-66	57. 7	32.0	26	110. 2	61.1	86	162. 7	90.2	46	215. 2	119.3
7	6.1	3.4	67	58.6	32.5	27	111.1	61.6	87	163.6	90.7	47	216.0	119.7
8	7.0	3.9	68	59.5	32. 5 33. 0 33. 5	28	112.0	62.1	88	164.4	91.1	48	216. 9	120.2
9	7. 9 8. 7	4.4	69 70	60.3 61.2	33. 9	29 30	112.8 113.7	62. 5 63. 0	89 90	165.3 166.2	91.6 92.1	49 50	217. 8 218. 7	120. 7 121. 2
11	9.6	5.3	71		34.4		114.6	63.5		167. 1	$\frac{92.1}{92.6}$		$\frac{218.7}{219.5}$	121. 7
12	10.5	5.8	72	62. 1 63. 0	34. 4	$\begin{array}{c} 131 \\ 32 \end{array}$	114.6	64.0	$\frac{191}{92}$	167. 1	93.1	$\frac{251}{52}$	219.5 220.4	121.
13	11.4	6.3	73	63. 8	35. 4	33	116.3	64.5	93	168.8	93.6	53	221. 3	122.
14	12. 2	6.8	74	64. 7	35. 9	34	117. 2	65.0	94	169.7	94. 1	54	222 2	123.
15	13. 1	7.3	75	65. 6	36.4	35	118.1	65.4	95	170.6	94.5	55	222. 2 223. 0	123.
16	14.0	7.8	76	66.5	36.8	36	118.9	65.9	96	171.4	95.0	56	223. 9	124.
17	14.9	8.2	77	67.3	36.8 37.3	37	119.8	66.4	97	172.3	95.5	57	224.8	124. (
18	15. 7	8.7	78	68. 2	37.8	38	120.7	66. 9	98	173. 2	96.0	58	225.7	125.
19	16.6	9.2	79	69.1	38.3	39	121.6	67.4	99	174.0	96.5	59	226.5	125.
_20	17.5	9.7	80	70.0	38.8	40	122.4	67. 9	200	174.9	97.0	60	227.4	126.
21	18.4	10.2	81	70.8	39. 3	141	123.3	68.4	201	175.8	97.4	261	228.3	126.
22	19. 2	10.7	82	71.7	39.8	42	124. 2	68.8	02	176.7	97. 9	62	229. 2	127.
23	20.1	11.2	83	72.6	40.2	43	125.1	69. 3	03	177.5	98.4	63	230.0	127.
24	21.0	11.6	84	73.5	40.7	44	125. 9	69.8	04	178.4	98.9	64	230.9	128.
25	21. 9	12.1	85	74.3	41.2	45	126.8	70.3	05	179.3	99.4	65	231.8	128.
26	22. 7	12.6	86	75. 2	41.7	46	127.7	70. 8 71. 3	06	180. 2	99.9	66	232. 6 233. 5	129.
$\begin{bmatrix} 27 \\ 28 \end{bmatrix}$	$23.6 \\ 24.5$	13. 1 13. 6	87	76.1	42. 2 42. 7	47	128.6		07	181.0	100.4	67 68	234.4	129. · 129. ·
29	25. 4	14.1	88 89	77. 0	43. 1	48 49	129. 4 130. 3	71.8	08 09	181. 9 182. 8	100. 8 101. 3	69	235.3	130.
30	26. 2	14.5	90	78.7	43.6	50	131. 2	72.7	10	183.7	101.8	70	236. 1	130.9
31	27.1	15.0	91	79.6	44.1	151	132.1	73. 2	211	184.5	102.3	271	237. 0	131.4
32	28.0	15.5	92	80.5	44.6	52	132. 9	73. 7	12	185. 4	102.8	72	237. 9 238. 8	131.9
33	28. 9	16.0	93	81.3	45.1	53	133.8	74.2	13	186.3	103.3	73	238.8	132.4
34	29.7	16.5	94	82. 2	45.6	54	134. 7	74.7	14	187. 2	103.7	74	239.6	132.
35	30.6	17.0	95	83.1	46.1	55	135.6	75.1	15	188.0	104. 2	75 76	240.5	133.
36 37	31. 5 32. 4	17.5 17.9	96	84. 0 84. 8	46. 5 47. 0	56 57	136. 4 137. 3	75.6 76.1	16 17	188. 9 189. 8	104. 7 105. 2	76 77	241. 4 242. 3	133. 8 134. 3
38	33. 2	18.4	97 98	85.7	47.5	58	138. 2	76.6	18	190.7	105. 7	78	242. 3	134.8
39	34. 1	18.9	99	86.6	48.0	59	139.1	77.1	19	191.5	106. 2	79	244.0	135.
40	35. 0	19.4	100	87. 5	48.5	60	139. 9	77.6	20	192.4	106. 7	80	244. 9	135.
41	35.9	19.9	101	88.3	49.0	161	140.8	78.1	221	193.3	107. 1	281	245.8	136. 2
42	36. 7	20.4	02	89. 2	49.5	62	141.7	78.5	22	194. 2	107.6	82	246.6	136.
43	37.6	20.8	03	90.1	49.9	63	142.6	79.0	23	195.0	108.1	83	247.5	137. 2
44	38.5	21.3	04	91.0	50.4	64	143.4	79.5	24	195.9	108.6	84	248.4	137.
45	39.4	21.8	05	91.8	50.9	65	144.3	80.0	25	196.8	109.1	85	249.3	138.
46	40. 2	22.3	06	92.7	51.4	66	145. 2	80.5	26	197. 7	109.6	86	250.1	138.
47	41.1	22.8	07	93.6	51.9	67	146.1	81.0	27	198.5	110. 1	87	251.0	139.
48	42.0	23.3	08	94.5	52.4	68	146.9	81.4	28	199.4	110.5	88	251.9	139.
49	42.9	23.8	09	95.3	52.8	69	147.8	81.9	29	200.3	111.0	89	252. 8 253. 6	140.
50	43.7	24. 2	10	96.2	53.3	70	148.7	82.4	30	201. 2	$\frac{111.5}{110.0}$	90		140.6
51 52	44.6	$24.7 \\ 25.2$	111	97.1	53.8 54.3	$\frac{171}{72}$	149. 6 150. 4	82. 9 83. 4	$\begin{array}{c} 231 \\ 32 \end{array}$	202. 0 202. 9	112. 0 112. 5	$\begin{array}{c} 291 \\ 92 \end{array}$	254. 5 255. 4	141.
53	45. 5 46. 4	25. 7	12 13	98. 0 98. 8	54.8	73	151.3	83.9	33	203.8	113.0	93	256. 3	142.
54	47. 2	26. 2	14	99.7	55.3	74	152. 2	84.4	34	203. 8	113.4	94	257. 1	142.
55	48.1	26. 7	15	100.6	55.8	75	153. 1	84.8	35	205.5	113. 9	95	258. 0	143.
56	49.0	27. 1	16	101.5	56. 2	76	153. 9	85.3	36	206.4	114.4	96	258.9	143.
57	49.9	27.6	17	102. 3	56. 7	77	154.8	85.8	37	207. 3	114.9	97	259.8	144. (
58	50.7	28. 1	18	103. 2	57. 2	78	155. 7	86.3	38	208. 2	115.4	98	260.6	144.
59	51.6	28.6	19	104.1	57.7	79	156.6	86.8	39	209.0	115.9	99	261.5	145.0
60	52. 5	29.1	20	105.0	58. 2	80	157.4	87.3	40	209.9	116.4	300	262.4	145. 4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	op.	1			1	1	1	<u>'</u>			1		1	
						610 (19° 241	. 299	1.					

61° (119°, 241°, 299°).

Difference of Latitude and Departure for 29° (151°, 209°, 331°).

Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
			227	015 5		401	900 0	204 1	407	400 7	022 0	5 11	450.0	000 9
301	263.2	145.9	361	315.7	175.0	421	368. 2	204.1	481	420.7	233. 2	541	473.2	262.3
02	264.1	146.4	62	316.6	175.5	22	369. 1	204.6	82	421.5	233.7	42	474.0	262.8
03	265.0	146.9	63	317.5	176.0	23	369. 9	205.1	83	422.4	234. 2	43	474.9	263. 2
04	265.9	147.4	64	318.3	176.5	24	370.8	205.6	84	423.3	234.6	44	475.8	263. 7
05	266.7	147.9	65	319.2	177.0	25	371.7	206.0	85	424. 2	235.1	45	476.6	264. 2
06	267.6	148.4	66	320.1	177.4	26	372.6	206.5	86	425.0	235.6	46	477.5	264.7
07	268.5	148.8	67	321.0	177.9	27	373.4	207.0	87	425.9	236.1	47	478.4	265. 2
08	269.4	149.3	68	321.8	178.4	28	374.3	207.5	88	426.8	236.6	48	479;3	265.7
09	270.2	149.8	69	322.7	178.9	29	375.2	208. 0	89	427.7	237. 1	49	480. 1	266. 2
10	271.1	150.3	70	323.6	179.4	30	376.1	208.5	90	428.5	237.6	50	481.0	266. 6
311	272.0	150.8	371	324.5	179.9	431	376.9	209.0	491	429.4	238.0	551	481.9	267.1
12	272.9	151.3	72	325.3	180.4	32	377.8	209.4	92	430.3	238.5	52	482.8	267.6
13	273.7	151.7	73	326.2	180.8	33	378. 7	209.9	93	431. 2	239.0	53	483.6	268. 1
14	274.6	152. 2	74	327.1	181.3	34	379.6	210.4	94	432.0	239.5	54	484.5	268.6
15	275.5	152.7	75	328.0	181.8	35	380.4	210.9	95	432.9	240.0	55	485.4	269.1
16	276.3	153. 2	76	328.8	182.3	36	381.3	211.4	96	433.8	240.5	56	486.3	269.5
17	277. 2	153. 7	77	329.7	182.8	37	382.2	211. 9	97	434.7	240.9	57	437.1	270.0
18	278.1	154.2	78	330.6	183.3	38	383.1	212.3	98	435.5	241.4	58	488.0	270.5
19	279.0	154.7	79	331.4	183. 7	39	383. 9	212.8	99	436.4	241. 9	59	488. 9 489. 8	271.0
20	279.8	155.1	80	332.3	184. 2	40	384.8	213.3	500	437.3	242.4	60		271.5
321	280.7	155.6	381	333. 2	184.7	441	385.7	213.8	501	438.2	242.9	561	490.6	272.0
22	281.6	156.1	82	334.1	185. 2	42	386.6	214.3	02	439.0	243.4	62	491.5	272.5
23	282.5	156.6	83	334. 9	185.7	43	387.4	214.8	03	439.9	243.9	63	492.4	272.9
24	283.3	157.1	84	335.8	186. 2	44	388.3	215. 3	04	440.8	244. 3 244. 8	64	493. 2 494. 1	273. 4 273. 9
25	284. 2	157.6	85	336.7	186.7	45	389.2	215. 7	05	441.6		65	495. 0	274.4
26	285.1	158.1	86	337.6	187.1	46	390.0	$\begin{vmatrix} 216.2\\ 216.7 \end{vmatrix}$	06 07	442. 5 443. 4	245. 3 245. S	66 67	495. 9	274. 4
27	286.0	158.5	87	338.4	187.6	47	390. 9 391. 8	217. 2	08	444.3	246.3	68	496.8	275. 4
28 29	$286.8 \\ 287.7$	159.0 159.5	88 89	339.3 340.2	188.1 188.6	48 49	392.7	$\frac{217.2}{217.7}$	09	445. 2	246.8	69	497.7	275. 9
30	288.6	160.0	90	341.1	189.1	50	393. 5	218. 2	10	446.1	247.3	70	498.5	276.3
		$\frac{160.6}{160.5}$		341.9	189, 6	451	394.4	$\frac{218.2}{218.7}$	511	447.0	247.8	571	499.4	276.8
331	289. 5 290. 3	160. 5	$\begin{array}{c c} 391 & \\ 92 & \end{array}$	342.8	190.0	52	395.3	219.1	12	447.8	248. 2	72	500.3	277.3
32	290.5 291.2	161. 4	93	343.7	190. 5	53	396. 2	219.6	13	448.6	248. 7	73	501.1	277.8
34	292. 1	161. 9	94	344.6	191.0	54	397. 0	220. 1	14	449.5	249. 2	74	502.0	278.3
35	293. 0	162. 4	95	345. 4	191.5	55	397.9	220. 6	15	450.4	249.7	75	502.9	278.8
36	293. 8	162. 9	96	346. 3	192.0	56	398.8	221. 1	16	451.3	250. 2	76	503.7	279. 2
37	294. 7	163. 4	97	347. 2	192.5	57	399.7	221.6	$\tilde{17}$	452. 2	250.6	77	504.6	279.7
38	295.6	163.9	98	348. 1	193.0	58	400.5	222.0	18	453.1	251.1	78	505.5	280. 2
39	296.5	164. 4	99	348.9	193.4	59	401.4	222.5	19	453.9	251.6	79	506.4	280.7
40	297.3	164.8	400	349.8	193.9	60	402.3	223.0	20	454.8	252.1	80	507.2	281. 2
341	298.2	165.3	401	350.7	194.4	461	403, 2	223.5	521	455.6	252.6	581	508.1	281.7
42	299. 1	165.8	02	351.6	194.9	62	404.0	224. 0	22	456.5	253. 1	82	509.0	282. 2
43	300.0	166.3	03	352.4	195. 4	63	404.9	224.5	23	457.4	253.6	83	509.9	282.7
44	300.8	166.8	04	353.3	195.9	64	405.8	225.0	24	458.3	254.0	84	510.7	283. 2
45	301.7	167.3	05	354.2	196.3	65	406.7	225.4	25	459.1	254.5	85	511.6	283.6
46	302.6	167.7	06	355.1	196.8	66	407.5	225.9	26	460.0	255.0	86	512.5	284.1
47	303.5	168.2	07	355.9	197.3	67	408.4	226.4	27	460.9	255.5	87	513.4	284.6
48	304.3	168.7	08	356.8	197.8	68	409.3	226.9	28	461.8	256.0	88	514.3	285.0
49	305.2	169.2	09	357.7	198.3	69	410.2	227.4	29	462.6	256.5	89	515.1	285.5
50	306.1	169.7	10	358.6	198.8	70	411.0	227.9	30	463.5	256. 9	90	516.0	286.0
351	307.0	170.2	411	359.4	199.3	471	411.9	228.3	531	464.4	257.4	591	516.9	286.5
52	307.8	170.7		360.3	199.7	72	412.8	228.8	32	465.3	257. 9	92	517.7	287.0
53	308.7	171.1	13	361.2	200. 2		413.7	229.3	33	466.1	258.4		518.6	287.5
54	309.6	171.6	14	362.1	200.7	74	414.5	229.8	34	467.0	258. 9	94	519.5	288.0
55	310.5	172.1	15	362.9	201. 2	75	415.4	230. 3	35	467. 9	259.4	95	520.4	288.5
56	311.3	172, 6	16	363.8	201.7	76	416.3	230. 8	36	468.8	259. 9	96	521. 2	288.9
57	312. 2	173.1	17	364.7	202. 2	77	417.2	231. 3	37	469.6	260. 3	97	522.1	289.4
58	313.1	173.6	18	365.6	202.7	78	418.0	231.7	38	470.5	260.8	98	523. 0	289. 9
59	314.0	174.0	19	366.4	203. 1	79	418.9	232. 2	39	471.4	261. 3	600	523.9	290.4
60	314.8	174.5	20	367.3	203.6	80	419.8	232.7	40	472.3	261.8	600	524.8	290. 9
Diet	Don	Tot	Diet	Den	Tet	Dist	Den	Tet	Dist.	Don	Let	Dist.	Don	Let
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
					6	310 (1	19° 241	0 2990)					

61° (119°, 241°, 299°).

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TABLE 2.

Difference of Latitude and Departure for 30° (150°, 210°, 330°).

Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.5	61	52.8	30.5	121	104.8	60.5	181	156.8	90.5	241	208.7	120.5
	1.7	1.0	62	53.7	31.0	22	105. 7	61.0	82	157.6	91.0	42	209.6	121.0
$\frac{2}{3}$	2.6	1.5	63	54.6	31.5	23	106.5	61.5	83	158.5	91.5	- 43	210.4	121.5
4	3.5	2.0	64	55. 4	32.0	· 24	107.4	62.0	84	159.3	92.0	44	211.3	122.0
5	4.3	2.5	65	56.3	32.5	25	108.3	62.5	85	160.2	92.5	45	212. 2	122.5 123.0
6	5.2	3.0	66	57.2	33.0	26	109.1	63.0	86	161.1	93.0	46	213.0	123.0
7	6.1	3.5	67	58.0	33.5	27	110.0	63.5	87	161.9	93.5	47	213.9	123.5
8	6.9	4.0	68	58.9	34.0	28	110.9	64.0	88	162.8	94.0	48	214.8	124.0
9	7.8	4.5	69	59.8	34.5	29	111.7	64.5	89	163.7	94.5	49	215.6	124, 5
10	8.7	5.0	70	60.6	35.0	30	112.6	65.0	90	164.5	95.0	50	216.5	125.0
11	9.5	5.5	71	61.5	35.5	131	113.4	65.5	191	165.4	95.5	251	217.4	125.5
12	10.4	6.0	$\cdot 72$	62.4	36.0	32	114.3	66.0	92	166.3	96.0	52	218.2	126.0
13	11.3	6.5	73	63. 2	36.5	33	115. 2	66.5	93	167.1	96.5	53	219.1	126.5
14	12.1	7.0	74	64.1	37.0	34	116.0	67.0	94	168.0	97.0	54	220.0	127.0
15	13.0	7.5	75	65.0	37.5	35	116.9	67.5	95	168.9	97.5	55	220.8	127.5
16	13.9	8.0	76	65.8	38.0	36	117.8	68.0	96	169.7	98.0	56	221.7 222.6	128.0
17	14.7	8.5	77	66.7	38.5	37	118.6	68.5	97	170.6	98.5	57	222.6	128.5
18	15.6	9.0	78	67.5	39.0	38	119.5	69.0	98	171.5	99.0	58	223.4	129.0
19	16.5	9.5	79	68. 4	39.5	39	120.4	69.5 =	99	172.3	99.5	59	224.3	129.5
20	17.3	10.0	80	69.3	40.0	40	121.2	70.0	200	173.2	100.0	60	225.2	130.0
21	18. 2	10.5	81	70.1	40.5	141	122.1	70.5	201	174.1	100.5	261	226.0	130.5
22	19.1	11.0	82	71.0	41.0	42	123. 0	71.0	02	174.9	101.0	62	226. 9 227. 8	131.0
23	19.9	11.5	83	71.9	41.5	43	123.8	71.5	03	175.8	101.5	63	227.8	131.5
24	20.8	12.0	84	72.7	42.0	44	124.7	72.0	04	176.7	102.0	64	228.6	132.0
25	21.7	12.5	85	73.6	42.5	45	125.6	72.5	05	177.5	102.5	65	229.5	132.5
26	22.5	13.0	86	74.5	43.0	46	126.4	73.0	06	178.4	103.0	66	230.4	133.0
27	23.4	13.5	87	75.3	43.5	47	127.3	73.5	07	179.3	103.5	67	231. 2	133.5
28	24.2	14.0	88	76.2	44.0	48	128.2	74.0	08	180.1	104.0	68	232. 1 233. 0	134.0
29	25.1	14.5	89	77.1	44.5	49	129.0	74.5	09	181.0	104.5	69	233.0	134.5
30	26.0	15.0	90	77.9	45.0	50	129.9	75.0	10	181.9	105.0	70	233.8	135.0
31	26.8	15.5	91	78.8	45.5	151	130.8	75.5	211	182.7	105.5	271	234.7	135.5
32	27.7	16.0	92	79.7	46.0	52	131.6	76.0	12	183.6	106.0	72	235.6	136.0
33	28.6	16.5	93	80.5	46.5	53	132.5	76.5	13	184.5	106.5	73	236.4	136.5
34	29.4	17.0	94	81.4	47.0	54	133.4	77.0	14	185.3	107.0	74	237.3	137.0
35	30.3	17.5	95	82.3	47.5	- 55	134.2	77.5	15	186. 2	107.5	75	238. 2	137.5
36	31.2	18.0	96	83.1	48.0	56	135.1	78.0	16	187.1	108.0	76	239.0	138.0
37	32.0	18.5	97	84.0	48.5	57	136.0	78.5	17	187.9	108.5	77	239.9	138.5
38	32. 9	19.0	98	84.9	49.0	58	136.8	79.0	18	188.8	109.0	78	240.8	139.0
39	33.8	19.5	99	85.7	49.5	59	137. 7	79.5	19	189.7	109.5	79	241.6	139.5
40	34.6	20.0	100	86. 6	50. 0	60	138.6	80.0	20	190.5	110.0	80	242.5	140.0
41	35.5	20.5	101	875	50.5	161	139.4	80.5	221	191.4	110.5	281	243.4	140.5
42	36.4	21.0	02	88.3	51.0	62	140.3	81.0	22	192.3	111.0	82	244. 2	141.0
43	37. 2	21.5	03	89.2	51.5	63	141. 2	81.5	23	193. 1	111.5	83	245.1	141.5
44	38.1	22.0	04	90.1	52.0	64	142.0	82.0	24	194.0	112.0	84	246.0	142. 0
45	39.0	22.5	05	90. 9	52.5	65	142.9	82.5	25	194.9	112.5	85	246.8	142.5
46	39.8	23.0	06	91.8	53.0	66	143.8	83.0	26	195.7	113.0	86	247.7	143.0
47	40.7	23.5	07	92.7	53.5	67	144.6	83.5	27	196.6	113.5	87	248.5	143.5
48	41.6	24.0	08	93.5	54.0	68	145.5	84.0	28	197.5	114.0	88	249. 4	144.0
49	42.4	24.5	09	94. 4	54.5	69	146.4	84.5	29	198.3	114.5	89	250.3	144.5
50	43.3	25.0	10	95.3	55.0	70	147.2	85.0	30	199. 2	115.0	90	251.1	145.0
51	44. 2	25.5	111	96.1	55. 5	171	148.1	85.5	231	200.1	115.5	291	252. 0	145.5
52	45.0	26.0		97.0	56.0		149.0	86.0			116.0		252. 9	146. 0
53	45. 9	26.5	13	97. 9	56.5	73	149.8	86.5	33	201.8	116.5	93	253.7	146.5
54	46.8	27.0	14	98.7	57. 0	74	150. 7	87. 0	34	202.6	117.0	94	254.6	147.0
55	47.6	27.5	15	99.6	57.5	75	151.6	87.5	35	203. 5	117.5	95	255.5	147.5
56	48.5	28.0	16	100.5	58.0	76	152.4	88.0	36	204. 4	118.0	96	256.3	148.0
57	49.4	28.5	17	101.3	58.5	77	153.3	88.5	37	205.2	118.5	97	257. 2	148.5
58	50.2	29.0	18	102.2	59.0	78	154. 2	89.0	38	206.1	119.0	98	258.1	149.0
59	51.1	29.5	19	103.1	59.5	79	155.0	89.5	39	207.0	119.5	99	258.9	149.5
60	52.0	30.0	20	103.9	60.0	80	155.9	90.0	40	207.8	120.0	300	259.8	150.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

60° (120°, 240°, 300°).

Difference of Latitude and Departure for 30° (150°, 210°, 330°).

			1101011	00 01 330			1		` _					
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
201	960.7	150 E	261	312.6	180. 5	421	364.6	210.5	481	416. 6	240.5	541	468.5	270.5
301	260.7 261.5	150. 5 151. 0	361 62	313.5	181.0	22	365.5	211.0	82	417.4	241.0	42	469. 4	271.0
02 03	262. 4	151.5	63	314.4	181.5	23	366.3	211.5	83	418.3	241.5	43	470.3	271.5
04	263. 3	152.0	64	315. 2	182.0	24	367. 2	212.0	84	419.2	242.0	44	471.1	272.0
05	264.1	152.5	65	316. 1	182.5	25	368.1	212.5	85	420.0	242.5	45	472.0	272.5
06	265.0	153.0	66	317.0	183.0	26	368.9	213.0	86	420.9	243.0	46	472.9	273.0
07	265.9	153.5	67	317.8	183.5	27	369.8	213.5	87	421.8	243.5	47	473.7	273.5
08	266.7	154.0	68	318.7	184.0	28	370. 7	214.0	88	422.6	244.0	48	474.6	274.0
09	267.6	154.5	69	319.6	184.5	29	371.5	214.5	89	423.5	244.5	49	475.5	274.5
10_	268.5	155.0	70	320.4	185.0	30	372.4	215, 0	90	424.4	245.0	50	476.3	275.0
311	269.3	155.5	371	321.3	185.5	431	373.3	215.5	491	425. 2 426. 1	245.5	551	477.2	$275.5 \\ 276.0$
12	270. 2	156.0	72 73	322. 2 323. 0	186.0 186.5	32 33	374.1 375.0	$\begin{vmatrix} 216.0 \\ 216.5 \end{vmatrix}$	92 93	426.1	246.0 246.5	52 53	478.1 478.9	276.5
13 14	$271.1 \\ 271.9$	156.5 157.0	74	323. 9	187. 0	34	375. 9	217. 0	94	427.8	247. 0	54	479.8	277.0
15	272.8	157.5	75	324.8	187.5	35	376.7	217.5	95	428.7	247.5	55	480.7	277.5
16	273.7	158.0	76	325.6	188.0	36	377.6	218.0	96	429.6	248.0	56	481.5	278.0
17	274.5	158.5	77	326.5	188.5	37	378.5	218.5	97	430.4	248.5	57	482.4	278.5
18	275.4	159.0	78	327.4	189.0	38	379.3	219.0	98	431.3	249.0	58	483.3	279.0
19	276.3	159.5	79	328.2	189.5	39	380.2	219.5	99	432.2	249.5	59	484.1	279.5
20	277.1	160.0	80	329.1	190.0	40	381.1	220.0	500	433.0	250.0	60	485.0	280.0
321	278.0	160.5	381	330.0	190.5	441	381.9	220.5	501	433. 9	250.5	561	485. 9	280.5
22	278.9	161.0	82	330.8	191.0	42	382.8	221. 0	02	434. 8 435. 6	$ \begin{array}{c} 251.0 \\ 251.5 \end{array} $	62 63	486.7	281. 0 281. 5
23	279.7	161.5	83	331. 7 332. 6	191.5 192.0	43 44	383.7 384.5	$\begin{vmatrix} 221.5 \\ 222.0 \end{vmatrix}$	03 04	436.5	251.0	64	488.5	$281.0 \\ 282.0$
24 25	280.6	162.0 162.5	84 85	333.4	192.0	45	385. 4	222. 5	05	437.4	252.5	65	489.3	282.5
$\frac{25}{26}$	281. 5 282. 3	163. 0	86	334.3	193. 0	46	386.3	223. 0	06	438. 2	253. 0	66	490. 2	283. 0
27	283. 2	163.5	87	335. 2	193.5	47	387.1	223.5	07	439. 1	253.5	67	491.1	283.5
28	284.1	164.0	88	336.0	194.0	48	388.0	224.0	08	440.0	254.0	68	491.9	284.0
29	284.9	164.5	89	336.9	194.5	49	388.9	224.5	09	440.8	254.5	69	492,8	284.5
30	285.8	165.0	90	337.8	195.0	50	389.7	225.0	_10	441.7	255.0	70	493.6	285.0
331	286.7	165.5	391	338.6	195.5	451	390.6	225.5	511	442.6	255.5	571	494.5	285.5
32	287.5	166.0	92	339.5	196.0	52	391. 5 392. 3	$\begin{vmatrix} 226.0\\ 226.5 \end{vmatrix}$	12 13	443. 4 444. 3	256. 0 256. 5	$\begin{array}{c} 72 \\ 73 \end{array}$	495. 4 496. 3	286. 0 286. 5
33 34	288. 4 289. 3	166.5 167.0	93 94	340.4 341.2	196. 5 197. 0	53 54	393. 2	227. 0	14	445. 2	257. 0	74	497.1	287. 0
35	290.1	167.5	95	342.1	197.5	55	394.0	227.5	15	446.0	257.5	75	497.9	287.5
36	291.0	168.0	96	343.0	198.0	56	394. 9	228.0	16	446. 9	258.0	76	498.8	288.0
37	291.9	168.5	97	343.8	198.5	57	395.8	228.5	17	447.8	258.5	77	499.7	288.5
38	292.7	169.0	98	344.7	199.0	58	396.6	229.0	18	448.6	259.0	78	500.5	289.0
39	293.6	169.5	99	345.6	199.5	59	397.5	229.5	19	449.4	259.5	79	501.3	289.5
40	294.5	170.0	400	346.4	200.0	60	398.4	230.0	20	450.3	260.0	80	502. 2	290.0
341	295.3	170.5	401	347.3	200.5	461	399.2	230.5	521	451. 2	260.5	581	503. 1	290.5
42	296. 2	171.0	02	348.1	201.0	62	400.1	231.0	22	452. 1 452. 9	261.0	82 83	504.0	291.0
43 44	297. 1 297. 9	171.5 172.0	$03 \\ 04$	349. 0 349. 9	$\begin{vmatrix} 201.5 \\ 202.0 \end{vmatrix}$	63 64	401. 0 401. 8	$\begin{vmatrix} 231.5 \\ 232.0 \end{vmatrix}$	$\frac{23}{24}$	452.9	$\begin{vmatrix} 261.5 \\ 262.0 \end{vmatrix}$	84	504.9 505.8	291.5 292.0
44	298.8	172. 0	05	350.7	202. 5	65	401. 8	232. 5	25	454.7	262.5	85	506.6	292.5
46	299. 7	173. 0	06	351.6	203. 0	66	403.6	233. 0	26	455.5	263. 0	86	507.5	293.0
47	300.5	173.5	07	352.5	203.5	67	404.4	233.5	27	456.4	263.5	87	508.4	293.5
48	301.4	174.0	08	353.3	204.0	68	405.3	234.0	28	457.3	264.0	88	509.2	294.0
49	302.3	174.5	09	354.2	204.5	69	406.2	234.5	29	458.1	264.5	89	510.1	294.5
50	303.1	175.0	10	355.1	205.0	70	407.0	235.0	30	459.0	265.0	90	511.0	295.0
351	304.0	175.5	411	355.9	205.5	471	407. 9	235.5	531	459.9	265.5	591	511.8	295.5
52	304.8	176.0	12	356.8	206. 0 206. 5	72 73	408.8 409.6	236. 0 236. 5	32 33	460.7 461.6	266. 0 266. 5	$\frac{92}{93}$	512. 7 513. 6	296.0 296.5
53 54	305. 7 306. 6	176.5 177.0	13 14	357. 7 358. 5	207. 0	74	410.5	237. 0	34	462.5	267. 0	94	514.4	$\frac{290.5}{297.0}$
55	307.4	177.5	15	359.4	207. 5	75	411.4	237.5	35	463.3	267.5	95	515. 3	297.5
56	308.3	178.0	16	360.3	208.0	76	412. 2	238.0	36	464. 2	268. 0	96	516. 2	298.0
57	309. 2	178.5	17	361.1	208.5	77	413.1	238.5	37	465.1	268.5	97	517.0	298.5
58	310.0	179.0	18	362.0	209.0	78	414.0	239.0	38	465. 9	269.0	98	517.9	299.0
59	310.9	179.5		362.9	209.5	79	414.8	239.5	39	466.8	269.5	99	518.8	299.5
60	311.8	180.0	20	363.7	210.0	80	415.7	240.0	40	467. 7	270.0	600	519.6	300.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
Dist.	Dep.	Lat.	Dist.	Dep.	1				t	Dop.	1	2250.	Dep.	
					6	000 (1	200 240	0 3000	1					

60° (120°, 240°, 300°).

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TABLE 2.

Difference of Latitude and Departure for 31° (149°, 211°, 329°).

			JIHCIC.			- and	Departe		01 (1		, 020	١٠		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.9	0.5	61	52.3	31.4	121	103.7	62.3	181	155.1	93. 2	241	206.6	124.1
2	1.7	1.0	62	53.1	31.9	22	104.6	62.8	82	156.0	93.7	42	207.4	124.6
3	2.6	1.5	63	54 0	32.4	23	105.4	63.3	83	156.9	94.3	43	208.3	125.2
4	3.4	$\begin{array}{c} 2.1 \\ 2.6 \end{array}$	64	54.9	33.0	24	106.3	63.9	84	157.7	94.8	44	209.1	125.7
5 6	4.3	2.6 3.1	65 66	55. 7 56. 6	33.5 34.0	$\frac{25}{26}$	107.1 108.0	$64.4 \\ 64.9$	85 86	158.6 159.4	95.3 95.8	45 46	210. 0 210. 9	126. 2 126. 7
7	5. 1 6. 0	3.1	66 67	57.4	34.0	$\frac{26}{27}$	108.0	65.4	86 87	160.3	96.3	46	211.7	126. 7
8	6.9	4.1	68	58.3	35.0	28	109.7	65.9	88	161.1	96.8	48	212.6	127.7
9	7.7	4.6	69	59.1	35.5	29	110.6	66.4	89	161. 1 162. 0	97.3	49	212.6 213.4	128.2
10	8.6	5.2	70	60.0	36.1	30	111.4	67.0	90	162.9	97.9	50	214.3	128.8
11	9.4	5.7	71	60.9	36.6	131	112.3	67.5	191	163.7	98.4	251	215.1	129.3
12 13	10.3 11.1	6. 2 6. 7	72 73	$61.7 \\ 62.6$	37.1 37.6	32 33	113.1 114.0	68.0 68.5	92 93	164. 6 165. 4	98. 9 99. 4	52 53	216. 0 216. 9	129. 8 130. 3 130. 8 131. 3
13	$11.1 \\ 12.0$	7.2	74	63.4	38.1	34	114.0	69.0	94	166.3	99. 4	54	210. 9	130.8
15	12.9	7.7	75	64.3	38.6	35	115.7	69.5	95	167.1	100.4	55	218.6	131.3
16	13.7	8.2	76	65.1	39.1	36	116.6	70.0	96	168.0	100.9	56	219.4	1 131.81
17	14.6	8.8	77	66.0	39.7	37	117.4	70.6	97	168.9	101.5	57	220.3	132. 4 132. 9
18	15.4	9.3	78 79	66.9	40.2	38	118.3	71.1	98	169.7	102.0	58 59	221.1	132.9
19 20	16.3 17.1	9.8 10.3	79 80	67. 7 68. 6	$ 40.7 \\ 41.2$	39 40	$\begin{vmatrix} 119.1 \\ 120.0 \end{vmatrix}$	$71.6 \\ 72.1$	$\frac{99}{200}$	170.6 171.4	102.5 103.0	59 60	222. 0 222. 9	133. 4 133. 9
21	18.0	10.8	81	69.4	41.7	141	120.9	72.6	$\frac{200}{201}$	172.3	103.5	261	223.7	134.4
22	18.9	11.3	82	70.3	42.2	42	121.7	73.1	02	173.1	104.0	62	224.6	134.9
23	19.7	11.8	83	71.1	42.7	43	122.6	73.7	03	174.0	104.6	63	225.4	135.5
24	20.6	12.4	84	72.0	43.3	44	123.4	74.2	04	174.9	105.1	64	226. 3 227. 1	136.0
25	21.4	12.9	85 86	72. 9 73. 7	43.8	45	124.3	74.7	05 06	175. 7 176. 6	105.6	65 66	227. 1 228. 0	136.5 137.0
26 27	22. 3 23. 1	13. 4 13. 9	86 87	73.7	44.8	$\frac{46}{47}$	$125.1 \\ 126.0$	75. 2 75. 7	06 07	177 4	106. 1 106. 6	66 67	228. 0	137.5
28	$\frac{23.1}{24.0}$	14. 4	88	75.4	45.3	48	126.9	76. 2	08	177. 4 178. 3	107.1	68	229.7	137.5 138.0
29	24.9	14.9	89	76.3	45.8	49	127.7	76.7	09	179.1	107.6	69	230.6	138.5
30	25.7	15.5	90	77.1	46.4	_50	128.6	77.3	10	180.0	108. 2	70	231.4	139.1
31	26.6	16.0	91	78.0	46.9	151	129.4	77.8	211	180. 9	108.7	271	232.3	139.6
32	27.4	16.5	92	78.9	47.4	52 53	130.3	78.3	12	181.7	109. 2 109. 7	$\frac{72}{73}$	233.1	140. 1 140. 6
33 34	28.3 29.1	17.0 17.5	93 94	79.7 80.6	47. 9 48. 4	53 54	131. 1 132. 0	78.8 79.3	13 14	182. 6 183. 4	1109.7	73 7 4	234. 0 234. 9	140.6
35	30.0	18.0	95	81.4	48.9	55	132.9	79.8	15	184.3	110.7	75	235.7	141.6
36	30.9	18.5	96	82.3	49.4	56	133.7	80.3	16	185.1	111.2	76	236.6	142.2
37	31.7	19.1	97	83.1	50.0	57	134.6	80.9	17	186.0	111.8	77	237.4	142.7
38	32.6	19.6	98	84.0	50.5	58 50	135.4	81.4	18	186.9	112.3	78 70	238.3	143. 2
39 40	33. 4 34. 3	20.1	99 100	84. 9 85. 7	51.0 51.5	59 60	136. 3 137. 1	81.9 82.4	19 20	187. 7 188. 6	112. 8 113. 3	79 80	239. 1 240. 0	143.7 144.2
41	35.1	21.1	101	86.6	52.0	161	138.0	82.9	$\frac{20}{221}$	189. 4	113. 8	281	$\frac{240.0}{240.9}$	144. 7
42	36.0	21.6	02	87.4	52.5	62	138.9	83.4	22	190.3	114.3	82	241.7	145.2
43	36.9	22.1	03	88.3	53.0	63	139.7	84.0	23	191.1	114.9	83	242.6	145.8
44	37.7	22.7	04	89.1	53.6	64	140.6	84.5	24	192.0	115.4	84	243.4	146.3
45 46	38.6	23.2	05	90.0	54.1	65 66	141.4	85.0	25	192.9	115. 9		244.3	146.8
46 47	39. 1 40. 3	23.7 24.2	06 07	90. 9 91. 7	54. 6 55. 1	66 67	142.3 143.1	85.5 86.0	$\frac{26}{27}$	193. 7 194. 6	116. 4 116. 9	86 87	245. 1 246. 0	147.3 147.8
48	41.1	$24.2 \\ 24.7$	08	92.6	55.6	68	144. 0	86.5	28	195.4	117. 4	88	246. 9	147.8
49	42.0	25. 2	09	93.4	56.1	69	144.9	87.0	29	196.3	117.9	89	247.7	148.8
50	42.9	25.8	10	94.3	56.7	70	145.7	87.6	30	197.1	118.5	90	248.6	149.4
51	43.7	26.3	111	95. 1	57. 2	171	146.6	88.1	231	198.0	119.0		249. 4	149.9
52 53	44.6	26.8	12	96.0	57.7	72	147.4	88.6		198.9	119.5		250.3	150.4
53 54	45. 4 46. 3	27.3 27.8	13 14	96. 9 97. 7	58. 2 58. 7	73 74	148.3 149.1	89.1	33 34	199. 7 200. 6	120.0 120.5	93 94	251. 2 252. 0	150.9 151.4
55	47.1	28.3	15	98.6	59.2	75	150.0	90.1	35	201.4	120.3 121.0	95	252.9	151.9
56	48.0	28.8	16	99.4	59.7	76	150.9	90.6	36	202.3	121.5	96	253.7	152.5
57	48.9	29.4	17	100.3	60.3	77	151.7	91.2	37	203.1	122.1	97	254.6	153.0
58	49.7	29. 9	18	101.1	60.8	78 70	152.6	91.7	38	204.0	122.6	98	255.4	153.5
59 60	50.6 51.4	30. 4	19 20	102. 0 102. 9	61. 3	79 80	153. 4 154. 3	92. 2 92. 7	39 40	204. 9 205. 7	123. 1 123. 6	99 300	256. 3 257. 1	154. 0 154. 5
00	01.4	50. 9	20	102.9	01.0	00	104. 0	02.1	40	200.7	120.0	200	207.1	104.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
-	-					1	<u> </u>	1			1	·	1	
						59° (1	21°, 239	°. 301°).					

59° (121°, 239°, 301°).

Difference of Latitude and Departure for 31° (149°, 211°, 329°).

			Differ	ence or	Lautuu	e and	Depart	ure for	or (.	130 , 21	1, 329).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	258.0	155.0	361	309. 4	185.9	421	360. 9	210.8	481	412.3	247.7	541	463.7	278.6
02	258.9	155.5		310.3	186.4	22	361.7	217.3	82	413.2	248. 2	42	464.6	279.1
03	259. 7	156.1	63	311.2	187.0	23	362.6	217.9	83	414.0	248.8	43	465.4	279.7
04	260.6	156.6		312. 0 312. 9	187.5 188.0	$\frac{24}{25}$	363. 4	$\begin{vmatrix} 218.4 \\ 218.9 \end{vmatrix}$	84 85	414.9	$\begin{vmatrix} 249.3 \\ 249.8 \end{vmatrix}$	44	466.3	280. 2 280. 7
05 06	261.4	157.1 157.6	.65 66	313.7	188.5	26	365. 2	219. 4	86	416.6	250.3	45 46	468.0	281. 2
07	263. 2	158.1	67	314.6	189.0	27	366.0	219. 9	87	417.4	250.8	47	468.9	281. 7
08	264.0	158.6	68	315. 4	189.5	28	366.9	220.4	88	418.3	251.3	48	469.7	282.3
09	264.9	159.2		316.3	190.1	29	367.7	221.0	89	419. 2	251.9	49	470.6	282.8
10	265.7	159.7	70	317.2	190.6	30	368.6	221.5	90	420.0	252.4	_50_	471.4	283. 3
311	266.6	160. 2	371	318.0	191.1	431	369.4	222.0	491	420. 9	252.9	551	472.3	283.8
12 13	267. 4 268. 3	160. 7 161. 2	$\begin{array}{c} 72 \\ 73 \end{array}$	318. 9 319. 7	191.6 192.1	32 33	370.3 371.2	222. 5 223. 0	92 93	$\begin{vmatrix} 421.7 \\ 422.6 \end{vmatrix}$	253. 4 253. 9	52 53	473. 2 474. 0	284. 3 284. 8
14	269. 2	161. 7	74	320.6	192. 6	34	372.0	223.5	94	423.4	254. 4	54	474.9	285.3
15	270.0	162. 2	75	321.4	193.1	35	372.9	224.0	95	424.3	254.9	55	475.7	285.8
16	270.9	162. 8 163. 3	76	322.3	193.7	36	373.7	224.6	96	425. 2	255.5	56	476.6	286.4
17	271.7	163.3	77	323. 2	194. 2	37	374.6	225. 1	97	426.0	256.0	57	477.4	286.9
18	272.6	163.8	78	324.0	194.7	38	375.4	225.6	98	426.9	256.5	58	478.3	287.4
19 20	273.4 274.3	164.3 164.8	79 80	$324.9 \\ 325.7$	195. 2 195. 7	39 40	376.3 377.2	226. 1 226. 6	99 500	427.7 428.6	257.0 257.5	59 60	479. 2 480. 0	287. 9 288. 4
321	275.2	165.3	381	326.6	196. 2	441	378.0	$\frac{220.0}{227.1}$	501	429.4	258.0	561	480.9	288. 9
22	276.0	165.8	82	327.4	196.7	42	378.9	227.7	02	430.3	258.6	62	481.7	289.5
23	276.9	166.4	83	328.3	197.3	43	379.7	228.2	03	431.2	259.1	63	482.6	290.0
24	277.7	166.9	84	329.2	197.8	44	380.6	228.7	04	432.0	259.6	64	483.4	290.5
25	278.6	167.4	85	330.0	198.3	45	381.4	229. 2	05	432.9	260.1	65	484.3	291.0
$\frac{26}{27}$	279.4	167. 9 168. 4	86 87	330. 9 331. 7	198.8 199.3	46 47	382.3 383.2	$\begin{vmatrix} 229.7 \\ 230.2 \end{vmatrix}$	06 07	433. 7 434. 6	$\begin{vmatrix} 260.6 \\ 261.1 \end{vmatrix}$	66 67	485. 2 486. 0	291. 5 292. 0
28	281. 2	168. 9	88	332.6	199.8	48	384.0	230. 7	08	435.4	261.6		486.9	292.5
29	282.0	169.5	89	333.4	200.4	49	384.9	231.3	09	436.3	262. 2	69	487.7	293. 1
30	282 9	170.0	.90	334.3	200.9	_50	385.7	231.8	_10	437.2	262.7	70	488.6	293.6
331	283.7	170.5	391	335. 2	201.4	451	386.6	232.3	511	438.0	263.2	571	489.4	294.1
32	284.6	171.0	92	336.0	201.9	$\frac{52}{52}$	387.4	232. 8 233. 3	12	438. 9 439. 7	263. 7	72	490.3	294.6
33 34	285. 4 286. 3	$171.5 \\ 172.0$	$\frac{93}{94}$	336. 9 337. 7	202. 4 202. 9	53 54	388.3 389.2	233. 8	13 14	439.7	264. 2 264. 7	73 74	491. 2 492. 0	295. 1 295. 6
35	287. 2	172.5	95	338.6	203.4	55	390.0	234.3	15	441.4	265. 2	75	492.9	296.1
36	288.0	173.1	96	339.4	204.0	56	390.9	234.9	16	441. 4 442. 3	265.8	76	493.7	296.7
37	288.9	173.6	97	340.3	204.5	57	391.7	235.4	17	443.2	266.3	77	494.6	297. 2
38	289.7	174.1	98	341.2	205.0	58	392.6	235. 9	18	444.0	266.8	78	495.4	297.7
39 40	290. 6 291. 4	174.6 175.1	99 400	$342.0 \\ 342.9$	205. 5 206. 0	59 60	393. 4 394. 3	236. 4 236. 9	19 20	444. 9 445. 7	$\begin{vmatrix} 267.3 \\ 267.8 \end{vmatrix}$	79 80	496.3 497.2	298. 2 298. 7
341	292.3	175.6	401	343.7	$\frac{206.5}{206.5}$	461	395. 2	$\frac{230.3}{237.4}$	521	446.6	$\frac{267.3}{268.3}$	581	498.0	$\frac{299.7}{299.2}$
42	293. 2	176.1	02	344.6	207. 0	62	396.0	238.0	22	447.4	268. 9	82	498.9	299. 8
43	294.0	176.7	03	345.4	207.6	63	396. 9	238.5	23	$447.4 \\ 448.3$	269.4	83	499.7	300.3
44	294. 9	177. 2	04	346.3	208.1	64	397. 7	239.0	24	449.2	269.9	84	500.6	300.8
45	295.7	177.7	05	347. 2	208.6	65	398.6	239.5	25	450.0	270.4	85	501.4	301.3
46 47	296. 6 297. 4	178. 2 178. 7	06 07	$348.0 \\ 348.9$	209. 1 209. 6	66 67	399. 4 400. 3	$240.0 \\ 240.5$	$\frac{26}{27}$	450.9 451.7	270.9 271.4	86 87	502.3 503.2	301.8
48	298.3	179.2	08	349.7	210. 1	68	401. 2	241.0	28	451.7 452.6	271. 9	88	504.0	302. 3 302. 8
49	299.2	179.8	09	350.6	210.7	69	402.0	241.5	29	453.4	272.4	89	504.9	303.3
_50	300.0	180.3	10	351.4	211.2	_70_	402.9	242.1	_ 30	454.3	273.0	90	505.7	303.9
351	300.9	180.8	411	352.3	211.7	471	403.7	242.6	531	455.2	273.5	591	506.6	304.4
52 53	301. 7 302. 6	181. 3 181. 8		$353.2 \\ 354.0$	$212.2 \\ 212.7$	72		243.1	32	456.0	274. 0	92	507.4	304.9
54	303.4	182.3	13 14	354. 9	213. 2	73 74	405.4	$243.6 \\ 244.1$	33 34	456. 9 457. 7	$274.5 \\ 275.0$	93 94	508. 3 509. 2	305. 4 305. 9
55	304.3	182.8	15	355.7	213.7	75	407. 2	244.6	35	458.6	275. 5	95	510.0	306. 4
56	305.2	183.4	16	356.6	214.3	76	408.0	245.2	36	459.4	276.1	96	510.9	307.0
.57	306.0	183.9	17	357.4	214.8	77	408.9	245.7	37	460.3	276.6	97	511.7	307.5
58 59	306. 9 307. 7	184. 4 184. 9	18	358. 3 359. 2	$215.3 \\ 215.8$	78 79	409.7	246. 2	38	461.2	277. 1	98	512.6	308.0
60	308.6	185.4	19 20	360.0	216. 3	79 80	410.6 411.4	246.7 247.2	39 40	462. 0 462. 9	277.6 278.1	99 600	513. 4 514. 3	308. 5 309. 0
		100.1			210.0	30	1,1,1	211.2	10	102.0	210, 1	000	014.0	000.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat,	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
			·'			500 (10	910 990	0 9010	\			·		
					3) g · (1:	21°, 239	, 501)•					

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TABLE 2.

Difference of Latitude and Departure for 32° (148°, 212°, 328°).

			лиеге	nce or 1		e and	Берапи	116 101	32 (1	40 , 212	, 526	١٠		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.5	61	51.7	32. 3	121	102.6	64.1	181	153. 5	95. 9	241	204.4	127.7
2	1.7	1.1	62	52.6	32.9	22	103. 5	64.7	82	154.3	96.4	42	205. 2	128.2
3	2.5	1.6	63	53.4	33.4	23	104.3	65.2	83	155.2	97.0	43	206.1	128.8
4	3.4	$\frac{2.1}{2}$	64	54.3	33.9	24	105.2	65.7	84	156.0	97.5	44	206.9	129.3
5	4.2	$\frac{2.6}{3.2}$	65	55. 1 56. 0	34. 4 35. 0	$\frac{25}{26}$	106.0	66. 2 66. 8	85 86	$156.9 \\ 157.7$	98. 0 98. 6	45 46	$207.8 \\ 208.6$	$129.8 \\ 130.4$
6 7	5. 1 5. 9	$\frac{3.2}{3.7}$	66 67	56.8	35.5	27	106. 9 107. 7	67.3	87	158.6	99.1	47	208.6	130. 4
8	6.8	4.2	68	57.7	36.0	28	108.6	67.8	88	159. 4	99.6	48	210.3	131.4
9	7.6	4.8	69	58.5	36.6	29	109.4	68. 4	89	160.3	100. 2	49	211. 2	131.9
10	8.5	5.3	70	59.4	37.1	30	110.2	68.9	90	161.1	100.7	50	212.0	132.5
11	9.3	5.8	71	60.2	37.6	131	111.1	69.4	191	162.0	101.2	251	212.9	133.0
12	10.2	6.4	72	61.1	38. 2 38. 7	32	111.9	69.9	92	162.8	101.7	52	213.7	133.5
13	11.0	6.9	73	61.9	38.7	33	112.8	70.5	. 93	163.7	102.3	53	214.6	134.1
14	11.9	7.4	74	62.8	39. 2	34	113.6	71.0	94	164.5	102.8	54	215.4	134.6
15	12.7	7.9	75	63.6	39.7	35	114.5	71.5	95	165.4	103. 3	55	216.3	135.1
16 17	13. 6 14. 4	8.5 9.0	76 77	64. 5 65. 3	40.3 40.8	36 37	115.3 116.2	$72.1 \\ 72.6$	96 97	166. 2 167. 1	103.9 104.4	56 57	217. 1 217. 9	135.7 136.2
18	15. 3	9.5	78	66.1	41.3	38	117.0	73.1	98	167. 9	104. 9	58	218.8	136. 7
19	16.1	10.1	79	67. 0	41.9	39	117.9	73.7	99	168.8	105.5	59	219.6	137. 2
20	17.0	10.6	80	67.8	42.4	40	118.7	74. 2	200	169.6	106.0	60	220.5	137.8
21	17.8	11.1	81	68.7	42.9	141	119.6	74.7	201	170.5	106.5	261	221.3	138.3
22	18.7	11.7	82	69.5	43.5	42	120.4	75.2	02	171.3	107.0	62	$222.2 \\ 223.0$	138.8
23	19.5	12.2	83	70.4	44.0	43	121.3	75.8	03	172. 2	107.6	63	223.0	139.4
24	20.4	12.7	84	71.2	44.5	44	122.1	76.3	04	173.0	108.1	64	223. 9	139.9
25 26	$21.2 \\ 22.0$	13. 2 13. 8	85 86	$72.1 \\ 72.9$	45. 0 45. 6	45 46	123.0 123.8	76.8 77.4	05 06	173.8 174.7	108. 6 109. 2	65 66	224. 7 225. 6	140. 4 141. 0
27	22. 0	14.3	87	73.8	46.1	47	124.7	77.9	07	175.5	109. 7	67	226. 4	141.5
28	23.7	14.8	88	74.6	46.6	48	125.5	78.4	08	176.4	110. 2	68	227.3	142.0
29	24.6	15.4	89	75. 5	47.2	49	126.4	79.0	09	177.2	110.8	69	228. 1	142.5
30	25.4	15.9	90	76.3	47.7	50	127. 2	79.5	_10	178.1	111.3	70	229.0	143.1
31	26.3	16.4	91	77.2	48.2	151	128.1	80.0	211	178.9	111.8	271	229.8	143.6
32	27.1	17.0	92	78.0	48.8	52	128. 9	80.5	12	179.8	112.3	72	230. 7	144.1
33	28.0	17.5	93	78.9	49.3	53	129.8	81.1	13	180. 6 181. 5	112. 9 113. 4	73 74	231.5 232.4	144.7 145.2
34 35	28. 8 29. 7	18.0 18.5	94 95	79. 7 80. 6	49.8 50.3	54 55	130. 6 131. 4	81. 6 82. 1	14 15	182.3	113. 4	75	233. 2	145. 7
36	30.5	19.1	96	81.4	50.9	56	132. 3	82.7	16	183. 2	114.5	76	234. 1	146.3
37	31.4	19.6	97	82.3	51.4	57	133.1	83. 2	17	184.0	115.0	77	234. 9	146.8
38	32. 2	20.1	98	83. 1	51.9	58	134.0	83.7	18	184.9	115.5	78	235.8	147.3
39	33. 1	20.7	99	84.0	52.5	59	134.8	84.3	19	185.7	116. 1	79	236.6	147.8
40	33.9	21.2	100	84.8	53.0	60	135.7	84.8	20	186.6	116.6	80	237.5	148.4
41	34.8	21.7	101	85. 7	53.5	161	136.5	85.3	221	187.4	117.1	281	238.3	148.9
42	35. 6 36. 5	22. 3 22. 8	$\begin{array}{c c} 02 \\ 03 \end{array}$	86. 5 87. 3	54. 1 54. 6	62 63	137. 4 138. 2	85. 8 86. 4	22 23	188. 3 189. 1	117. 6 118. 2	82 83	239. 1 240. 0	149. 4 150. 0
44	37.3	23.3	04	88.2	55.1	64	139.1	86. 9	$\frac{23}{24}$	190.0	118.7	84	240. 8	150. 5
45	38. 2	23.8	05	89.0	55.6	65	139. 9	87.4	25	190.8	119.2	85	241.7	151.0
46	39.0	24.4	06	89.9	56.2	66	140.8	88.0	26	191.7	119.8	86	242.5	151.6
47	39.9	24.9	07	90.7	56. 7	67	141.6	88.5	27	192.5	120.3	87	243. 4	152.1
48	40.7	25.4	08	91.6	57.2	68	142.5	89.0	28	193.4	120.8	88	244. 2	152.6
49	41.6	26.0	09	92. 4 93. 3	57.8	69 70	143. 3 144. 2	89.6	29 30	194. 2 195. 1	121. 4 121. 9	89 90	245. 1 245. 9	153. 1 153. 7
50	42.4	26.5	10		58.3			90.1		195. 9	$\frac{121.5}{122.4}$	291	246.8	154. 2
$\begin{array}{c} 51 \\ 52 \end{array}$	43.3	$\begin{bmatrix} 27.0 \\ 27.6 \end{bmatrix}$	$\frac{111}{12}$	94. 1 95. 0	58. 8 59. 4	$\frac{171}{72}$	145. 0 145. 9	90. 6 91. 1	$\frac{231}{32}$		122. 4		240.8 247.6	
53	44.9	28.1	13	95.8	59. 9	73	146. 7	91.7	33	197.6	123.5	93	248.5	155.3
54	45.8	28.6	14	96.7	60.4	74	147. 6	92. 2	34	198.4	124.0	94	249.3	155.8
55	46.6	29.1	15	97.5	60.9	75	148.4	92.7	35	199.3	124.5	95	250. 2	156.3
56	47.5	29.7	16	98.4	61.5	76	149.3	93.3	36	200.1	125. 1	96	251.0	156.9
57	48.3	30. 2	17	99.2	62.0	77	150.1	93.8	37	201. 0 201. 8	125. 6 126. 1	97	251. 9 252. 7	157. 4 157. 9
58 59	49. 2	30.7	$\begin{array}{c} 18 \\ 19 \end{array}$	100.1	62. 5 63. 1	78 79	151. 0 151. 8	94.3	38 39	201.8	126. 7	98 99	253. 6	157. 9
60	50. 9	31.8	20	100.9	63.6	80	152.6	95. 4	40	203.5	127. 2		254. 4	159. 0
					33.3									
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
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58° (122°, 238°, 302°).

TABLE 2.

Difference of Latitude and Departure for 32° (148°, 212°, 328°).

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				1100 01 1			Depuite		- (-	,	, , , ,	<i>,</i> ·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	255.3	159.5	361	306. 2	191.3	421	357.0	223. 1	481	407.9	254. 9	541	458.8	286. 7
02	256.1	160.0	62	307.0	191.8	22	357.9	223.6	82	408.8	255. 4	42	459.6	287. 2
03	257.0	160.5	63	307.9	192.3	23	358.7	224.1	83	409.6	255.9	43	460.5	287.7
04	257.8	161.1	64	308.7	192.9	24	3 5 9. 6	224.7	84	410.5	256.5	44	461.3	288.3
05	258.7	161.6	65	309.5	193.4	25	360.4	225. 2	85	411.3	257. 0	45	462. 2	288.8
06	259.5	162.1	66	310.4	193.9	26	361.3	225.7	86	412. 2	257.5	46	463.0	289.3
07	260.4	162.7	67	311.2	194.5	27	362.1	226.3	87	413.0	258. 1	47	463.9	289.9
08	261. 2	163. 2	68	312.1	195.0	28	363. 0 363. 8	226.8	88	413.9	258.6	48	464. 7	290.4
09	262.1	163.7	69	312.9	195.5	29	363.8	227.3	89	414.7	259.1	49	465.6	290.9
10	262.9	164.3	70	313.8	196.0	30	364.7	227.8	90	415.6	259.6	_ 50	466. 4	291.5
311	263.8	164.8	371	314.6	196.6	431	365.5	228.4	491	416.4	260.2	551	467.3	292.0
12	264.6	165. 3	72	315.5	197.1	32	366.4	228.9	92	417.3	260. 7	52	468.1	292.5
13	265.4	165.8	73	316.3	197.6	33	367. 2	229.4	93	418.1	261. 2	53	469.0	293.0
14	266. 3	166.4	74	317. 2	198. 2 198. 7	34	368.1	230.0	94	419. 0 419. 8	261. 8 262. 3	54 55	469.8	293. 6 294. 1
15	267. 1 268. 0	166. 9	75 76	318.0	198. 7	35 36	368. 9 369. 8	$\begin{vmatrix} 230.5 \\ 231.0 \end{vmatrix}$	95 96	420.6	262. 8	56	470.7 471.5	294.1 294.6
16 17	268. 8	167. 4 168. 0	77	318. 9 319. 7	199.8	37	370.6	231.6	97	421.5	263. 4	57	479 4	295. 2
18	269. 7	168.5	78	320.6	200.3	38	371.5	232. 1	98	422.3	263. 9	58	472. 4 473. 2	295.7
19	270.5	169.0	79	321.4	200.8	39	372.3	232. 6	99	423. 2	264. 4	59	474.1	296. 2
20	271. 4	169.6	80	322.3	201. 3	40	373.2	233. 1	500	424.0	265. 0	60	474.9	296. 7
321	272. 2	170.1	381	323. 1	201. 9	441	374.0	233.7	501	424. 9	$\frac{265.5}{265.5}$	561	475.8	297.3
22	273.1	170. 6	82	324. 0	202. 4	42	374.8	234. 2	02	425. 7	266. 0	62	476.6	297. 8
22 23	273.9	171.1	83	324.8	202. 9	43	375.7	234. 7	03	426.6	266.5	63	477.5	297. 8 298. 3
24	274.8	171.7	84	325. 7	203.5	44	376.5	235.3	04	427.4	267.1	64	478.3	298.9
25	275.6	172.2	85	326.5	204.0	45	377.4	235.8	05	428.3	267.6	65	479. 2	299.4
26	276.5	172.7	86	327.4	204.5	46	378.2	236.3	06	429.1	268.1	66	480.0	299.9
27	277.3	173.3	87	328.2	205.1	47	379.1	236.9	07	430.0	268.7	67	480.9	300.5
28	278.2	173.8	88	329.1	205.6	48	379.9	237.4	08	430.8	269.2	68	481.7	301.0
29	279.0	174.3	89	329.9	206.1	49	380. 8	237. 9	09	431. 7	269.7	69	482.6	301.5
30	279.9	174.9	90	330.8	206.6	50	381.6	238. 4	10	432.5	270.3	70	483.4	302.1
331	280.7	175.4	391	331.6	207. 2	451	382.5	239.0	511	433.4	270.8	571	484.3	302.6
32	281.6	175.9	92	332.5	207. 7	52	383. 3	239.5	12	434. 2	271.4	72	485.1	303. 2
33	282.4	176.4	93	333.3	208. 2	53	384.2	240.0	13	435.1	271. 9	73 74	486.0	303.7
34 35	283. 3 284. 1	$177.0 \\ 177.5$	94 95	334.2 335.0	208. 8 209. 3	54 55	$385.0 \\ 385.9$	240.6 241.1	14 15	435. 9 436. 8	$272.4 \\ 272.9$	75	486. 8 487. 7	$304.2 \\ 304.7$
36	285. 0	178.0	96	335.8	209.8	56	386.7	241. 6	16	437.6	273. 5	76	488.5	305.3
37	285.8	178.6	97	336. 7	210.4	57	387. 6	242. 2	17	438.5	274.0	77	489. 4	305.8
38	286.7	179.1	98	337.5	210. 9	58	388. 4	242.7	18	439.3	274.5	78	490. 2	306.3
39	287.5	179.6	99	338. 4	211.4	59	389.3	243. 2	19	440.2	275.0	79	491.1	306.8
40	288.3	180. 2	400	339.2	211.9	60	390. 1	243.8	20	441.0	275.6	80	491.9	307.4
341	289.2	180.7	401	340.1	212.5	461	391.0	244.3	521	441.9	276.1	581	492.8	307. 9
42	290.0	181.2	02	340.9	213.0	62	391.8	244.8	22	442.7	276.6	82	493.6	308.4
43	290.9	181.7	03	341.8	213.5	63	392.7	245.4	23	443.6	277.2	83	494.5	309.0
44	291.7	182.3	04	342.6	214.1	64	393.5	245.9	24	444.4	277.7	84	495.3	309.5
45	292.6	182.8	05	343.5	214.6	65	394. 4	246.4	25	445.3	278. 2	85	496. 2	310.0
46	293.4	183.3	06	344.3	215.1	66	395. 2	246.9	26	446.1	278. 7	86	497.0	310.5
47	294.3	183. 9	07	345. 2	215.7	67	396.0	247. 5	27	446.9	279.3	87	497.8	311.1
48 49	295.1	184.4	08	346.0	216.2	68	396.9	248. 0	28 29	447. 8 448. 6	279.8 280.3	88 89	498.7 499.5	311. 6 312. 1
50	296. 0 296. 8	184.9 185.4	09 10	346. 9 347. 7	216.7 217.2	69 70	397. 7 398. 6	$\begin{vmatrix} 248.5 \\ 249.0 \end{vmatrix}$	30	449.5	280. 9	90	500.3	312.1
351	297. 7	186. 0	411	348.6	217. 8	$\frac{70}{471}$	399.4	$\frac{249.0}{249.6}$	531	450.3	281. 4	591	501. 2	313. 2
52	$\frac{297.7}{298.5}$	186. 0		348. 6	217. 8		400.3	250.1	32	450. 3	281. 4	92	501. 2	313. 7
53	299.4	187. 0	13	350.3	218.8	73	401.1	250. 1	33	$451.1 \\ 452.0$	282. 4	93	502. 9	314. 2
54	300.2	187.6	14	351.1	219.4	74	402.0	251. 2	34	452.8	283. 0	94	503. 7	314. 8
55	301.1	188.1	15	352.0	219.9	75	402.8	251.7	35	453. 7	283.5	95	504.6	315.3
56	301.9	188.6	16	352.8	220.4	76	403. 7	252, 2	36	454.5	284.0	96	505.4	315.8
57	302.8	189. 2	17	353.6	221.0	77	404.5	252.8	37	455.4	284.6	97	506.2	316.4
58	303.6	189.7	18	354.5	221.5	78	405.4	253.3	38	456. 2	285.1	98	507.1	316.9
59	304.5	190. 2	19	355.3	222.0	79	406. 2	253.8	39	457.1	285.6	99	508.0	317.4
60	305.3	190.8	20	356. 2	222.5	80	407.1	254.3	40	457.9	286.2	600	508.8	318.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
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58° (122°, 238°, 302°).

TABLE 2.

Difference of Latitude and Departure for 33° (147°, 213°, 327°).

			Diner	ence or .	Lauruu	e and		ire for	33 (147 , 216	, 321	<i>ا</i> ٠		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.5	61	51.2	33. 2	121	101.5	65.9	181	151.8	98.6	241	202.1	131.3
2 3	1.7	1.1	62	52.0	33.8	22	102.3	66.4	82	152.6	99.1	42	203.0	131.8
3	2.5	1.6	63	52.8	34. 3	23	103. 2	67.0	83	153.5	99.7	43	203.8	132.3
4 5 6	3.4	2.2 2.7	64	53.7	34. 9 35. 4	24	104.0	67.5	84	154.3	100.2	44	204.6	132.9
8	4.2 5.0	3.3	65 66	54. 5 55. 4	35. 9	$\frac{25}{26}$	104. 8 105. 7	68. 1 68. 6	85 86	155. 2 156. 0	100.8 101.3	45 46	205. 5 206. 3	133. 4 134. 0
7	5.9	3.8	67	56. 2	36.5	27	106.5	69. 2	87	156.8	101.8	47	207. 2	134.5
8	6.7	4.4	68	57.0	37.0	28	107.3	69.7	88	157.7	102.4	48	208.0	135. 1
9	7.5	4.9	69	57.9	37.6	29	108.2	70.3	89	158. 5	102.9	49	208.8	135.6
10	8.4	5.4	70	58.7	38. 1	30	109.0	70.8	90	159.3	103.5	50	209. 7	136. 2
11	9.2	6.0	71	59.5	38.7	131	109.9	71.3	191	160. 2	104.0	251	210.5	136.7
12	10.1	6.5	72	60.4	39.2	32	110.7	71.9	92	161.0	104.6	52	211. 3 212. 2	137. 2
13 14	10.9 11.7	7.1 7.6	73 74	61.2 62.1	39.8	33 34	111.5	72. 4 73. 0	93 94	161. 9 162. 7	105. 1 105. 7	53 54	212. 2	137. 8 138. 3
15	12.6	8.2	75	62. 9	40.8	35	113. 2	73.5	95	163.5	106. 2	55	213. 9	138.9
16	13.4	8. 2 8. 7	76	63.7	41.4	36	114.1	74.1	96	164. 4	106.7	56	214.7	139.4
17	14.3	9.3	77	64.6	41.9	37	114.9	74.6	97	165. 2	107.3	57	215.5	140.0
18	15. 1	9.8	78	65.4	42.5	38	115.7	75. 2	98	166.1	107.8	58	216.4	140.5
19	15.9	10.3	79	66.3	43.0	39	116.6	75. 7	99	166. 9	108. 4	59	217. 2	141.1
20	16.8	10.9	80	67.1	43.6	40	117.4	76. 2	200	167.7	108.9	60	218.1	141.6
21 22	17.6 18.5	11.4 12.0	81	67. 9 68. 8	44.1	141	118.3 119.1	76. 8 77. 3	201	168.6	109.5	261	218. 9 219. 7	142. 2 142. 7
23	19.3	12.5	82 83	69.6	44. 7 45. 2	42 43	119. 1	77.9	$\frac{02}{03}$	169. 4 170. 3	110. 0 110. 6	$\begin{array}{c} 62 \\ 63 \end{array}$	220.6	143. 2
24	20.1	13.1	84	70.4	45. 7	44	120.8	78. 4	04	171.1	111.1	64	221.4	143. 8
25	21.0	13.6	85	71.3	46.3	$\hat{45}$	121.6	79.0	05	171.9	111.7	65	222. 2	144.3
26	21.8	14. 2 14. 7	86	72.1	46.8	46	122.4	79.5	06	172.8	112.2	66	223.1	144. 9
27	22.6	14.7	87	73.0	47. 4	47	123.3	80.1	07	173.6		67	223. 9	145.4
28	23.5	15.2	88	73.8	47.9	48	124.1	80.6	08	174. 4	113.3	68	224.8	146.0
29 30	$24.3 \\ 25.2$	15.8 16.3	89 90	74. 6 75. 5	48. 5 49. 0	49 50	125. 0 125. 8	81. 2 81. 7	09 10	175.3	113.8	69 70	225.6 226.4	146. 5 147. 1
31	$\frac{26.2}{26.0}$	16. 9	91	$\frac{76.3}{76.3}$	49.6	151	$\frac{126.6}{126.6}$	82. 2	$\frac{10}{211}$	$\frac{176.1}{177.0}$	$\frac{114.4}{114.9}$	$\frac{70}{271}$	$\frac{220.4}{227.3}$	147.6
32	26.8	17.4	92	77. 2	50.1	52	127.5	82. 8	12		115.5	72	228.1	148.1
33	27. 7	18.0	93	78. 0	50.7	53	128.3	83.3	13	178.6	116.0	73	229. 0	148. 7
34	28.5	18.5	94	78.8	51.2	54	129.2	83.9	14	179.5	116.6	74	229.8	149. 2
35	29.4	19.1	95	79. 7	51.7	55	130.0	84.4	15	180.3	117.1	75	230.6	149.8
36 37	30. 2	19.6	96	80.5	52.3	56	130.8	85.0	16	181. 2	117.6	76	231. 5	150.3
38	31. 0 31. 9	20. 2 20. 7	97 98	$81.4 \\ 82.2$	52. 8 53. 4	57 58	131. 7 132. 5	85. 5 86. 1	17 18	182. 0 182. 8	118. 2 118. 7	77 78	232. 3 233. 2	150. 9 151. 4
39	32.7	21. 2	99	83.0	53. 9	59.	133.3	86.6	19	183.7	119.3	79	234.0	152.0
40	33.5	21.8	100	83.9	54.5	60	134. 2	87. 1	20	184.5	119.8	80	234.8	152.5
41	34.4	22.3	101	84.7	55.0	161	135.0	87.7	221	185.3	120.4	281	235.7	153.0
42	35.2	22.9	02	85.5	55.6	62	135.9	88.2	22	186.2	120.9	82	236.5	153.6
43	36.1	23. 4	03	86.4	56.1	63	136. 7	88.8	23	187.0	121.5	83	237.3	154.1
44 45	$\frac{36.9}{37.7}$	24. 0 24. 5	04	87. 2	56.6	64	137.5	89.3	24	187.9	122.0	84	238. 2	154.7
46	38.6	25.1	05 06	88. 1 88. 9	57. 2 57. 7	65 66	138. 4 139. 2	89. 9 90. 4	$\frac{25}{26}$	188. 7 189. 5	122. 5 123. 1	85 86	239. 0 239. 9	155. 2 155. 8
47	39. 4	25.6	07	89.7	58.3		140.1	91.0	$\frac{20}{27}$	190.4	123. 6	87	240.7	156.3
48	40.3	26.1	08	90.6	58.8	68	140.9	91.5	28	191.2	124. 2	88	241.5	156. 9
49	41.1	26.7	09	91.4	59.4	69	141.7	92.0	29	192.1	124.7	89	242.4	157.4
50	41.9	27. 2	10	92.3	59.9		142.6	92.6	30	192.9	125.3	90	243.2	157.9
51	42.8	27. 8	111	93. 1	60.5		143.4	93.1	231	193.7	125.8	291	244.1	158.5
52 53	43.6 44.4	28. 3 28. 9	12 13	93.9	61.0 61.5	2	144.3	93.7	32	194.6		92	244. 9	159.0
54	45.3	29. 4	14	$94.8 \\ 95.6$	62.1	73 74	145.1 145.9	94. 2 94. 8	$\frac{33}{34}$	195. 4 196. 2	126.9 127.4	93 94	245.7 246.6	159. 6 160. 1
55	46.1	30. 0	15	96. 4	62. 6	75	146.8	95.3	35	197. 1	128.0	95	247.4	160.7
56	47.0	30.5	16	97.3	63. 2	76	147.6	95.9	36	197.9	128.5	96	248.2	161. 2
57	47.8	31.0	17	98.1	63.7	77	148.4	96.4	37	198.8	129.1	97	249.1	161.8
58	48.6	31.6	18	99.0	64.3	78	149.3	96.9	38	199.6	129.6	98	249.9	162. 3
59 60	49. 5 50. 3	32. 1 32. 7	19 2 0	99.8 100.6	64.8	79 80	150. 1 151. 0	97.5	39	200.4	130. 2	300	250. 8	162.8
00	00.0	04. 1	20	100.0	65.4	00	101.0	98.0	40	201.3	130. 7	300	251.6	163. 4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						*	1			2.01.	1		2.01.	
					=	70 /16	20 9270	2020						

57° (123°, 237°, 303°).

TABLE 2.

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Difference of Latitude and Departure for 33° (147°, 213°, 327°).

			Diner	ence of i	antua	eand	Departi	ine for	33 ()	147 , 210	, 321).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	252.4	163. 9	361	302.8	196.6	421	353.1	229.3	481	403.4	262.0	541	453.7	294.6
02	253. 3	164. 4	62	303.6	197.1	22	353.9	229.8	82	404.2	262.5	42	454.6	295. 2
03	254.1	165.0	63	304.4	197.7	23	354.7	230.4	83	405.1	263. 1	43	455.4	295.7
04	255.0	165.5	64	305.3	198.2	24	355.6	230.9	84	405.9	263. 6	44	456. 2	296. 2
05	255.8	166.1	65	306.1	198.8	25	356.4	231.4	85	406.7	264. 1	45	457.1	296.8
06	256.6	166.6	66	307.0	199.3	26	357.3	232.0	86	407.6	264. 7	46	457.9	297.3
07	257.5	$\begin{vmatrix} 167.2\\ 167.7 \end{vmatrix}$. 67	307.8	199.8	27 28	358. 1 359. 0	$\begin{vmatrix} 232.5 \\ 233.1 \end{vmatrix}$	87 88	408.4	265. 2 265. 8	47 48	458. 8 459. 6	297. 9 298. 4
08 09	258.3 259.2	168.3	68 69	308. 6 309. 5	200. 4	29	359.8	233. 6	89	410.1	266.3	49	460. 4	299.0
10	260.0	168.8	70	310.3	201.5	30	360.6	234. 2	90	411.0	266. 8	50	461.3	299.5
311	260.8	169.3	371	311. 2	202. 0	431	361.5	234. 7	491	411.8	267. 4	551	462. 1	300.1
12	261.7	169. 9	72	312. 0	202.6	32	362.3	235. 2	92	412.6	267. 9	52	463. 0	300.6
13	262.5	170. 4	73	312.8	203. 1	33	363.1	235.8	93	413.5	268.5	53	463.8	301.2
14	263.3	171.0	74	313.7	203.7	34	364.0	236.3	94	414.3	269.0	54	464.6	301. 7
15	264. 2	171.5	75	314.5	204.2	35	364.8	236. 9	95	415.1	269.6	55	465.5	302.3
16	265.0	172.1	76	315.3	204.7	36	365.7	237.4	96	416.0	270.1	56	466.3	302. 9
17	265.9	172.6	77	316. 2	205.3	37	366.5	238. 0	97	416.8	270.7	57	467. 2	303.4
18	266. 7	173. 2	78	317.0	205.8	38	367.3	238. 5	98	417.6	271. 2	58	468.0	303.9
19	267.5	173.7	79	317. 9 318. 7	206. 4	39 40	368. 2 369. 0	239. 1 239. 6	99 500	418.5 419.3	271. 8 272. 3	59 60	468. 8 469. 7	304. 5 305. 0
20	268.4	$\frac{174.2}{174.0}$	80		206. 9					420. 2	272.8			
321	269. 2 270. 1	174. 8 175. 3	381 82	319. 5 320. 4	207.5 208.0	441 42	369. 9 370. 7	240.1 240.7	$ \begin{array}{c} 501 \\ 02 \end{array} $	420. 2	273. 4	$\begin{array}{c} 561 \\ 62 \end{array}$	470.5 471.3	305.5 306.1
22 23	270.1	175. 9	83	321. 2	208.6	43	371.5	241. 2	03	421. 9	273. 9	63	472.2	306.6
24	271. 7	176.4	84	322. 1	209.1	44	372.4	241.8	04	422.7	274.5	64	473.0	307.2
$\tilde{25}$	272.6	177.0	85	$322.1 \\ 322.9$	209.6	45	373. 2	242.3	05	423.5	275.0	$6\overline{5}$	473.8	307.7
26	273.4	177.5	86	323.7	210. 2 210. 7	46	374.1	242.9	06	424.4	275.6	66	474.7	308.3
27	274.2	178.1	87	324.6	210.7	47	374.9	243.4	07	425. 2	276.1	67	475.5	308.8
28	275.1	178.6	88	325.4	211.3	48	375.7	244.0	08	426.0	276.7	68	476.4 477.2	309.4
. 29	275.9	179.1	89	326. 2	211.8	49	376.6	244.5	09	426.9	277.2	69	477.2	309. 9
30	276.8	179.7	90	327.1	212.4	50	377.4	245.1	10	427.7	277.8	70	478.0	310.4
331	277.6	180.2	391	327. 9	212.9	451	378.2	245.6	511	428.5	278.3	571	478. 9	311.0
32	278.4	180. 8 181. 3	92	328.8	213.5	52 53	379.1	246. 1 246. 7	12 13	429. 4 430. 2	278. 8 279. 4	72 73	479. 7 480. 6	$311.5 \\ 312.0$
33 34	279.3 280.1	181. 9	93 94	329. 6 330. 4	$214.0 \\ 214.6$	54	379. 9 380. 8	247. 2	14	431.1	279. 9	74	481.4	312.6
35	281. 0	182.4	95	331.3	215. 1	55	381.6	247.8	15	431.9	280. 4	75	482. 2	313.1
36	281.8	183.0	96	332. 1	215.6	56	382. 4	248. 3	16	432. 7	281.0	76	483.1	313.7
37	282.6	183.5	97	333.0	216.2	57	383. 3	248.9	17	433.6	281.5	77	483.9	314.2
38	283.5	184.1	98	333.8	216.7	58	384.1	249.4	18	434.4	282.1	78	484.7	314.8
39	284.3	184.6	99	334.6	217.3	59	385.0	250.0	19	435.3	282.6	79	485.6	315.3
40	285.2	185.1	400	335.5	217.8	60	385.8	250.5	_ 20	436.1	283. 2	80	486.4	315.9
341	286.0	185.7	401	336. 3	218.4	461	386.6	251.0	521	436.9	283.7	581	487.2	316.4
42	286. 8	186. 2	02	337.1	218.9	62	387.5	251.6	22	437.8	284.3	82	488.1	317.0
43	287.7	186.8	03	338. 0	219.5	63	388.3	252.1 252.7	23	438.6	284.8	83	488. 9	317.5
44 45	288. 5 289. 3	187. 3 187. 9	04 05	338. 8 339. 7	220.0 220.5	64 65	389. 1 390. 0	253. 2	24 25	439. 4 440. 3	285. 4 285. 9	84 85	489. 8 490. 6	318. 1 318. 6
46	290. 2	188.4	06	340.5	220.3	66	390.8	253. 8	$\frac{25}{26}$	441.1	286.5	86	491.5	319. 2
47	291.0	189.0	07	341.3	221.6	67	391.7	254. 3	27	442.0	287. 0	87	492.3	319. 7
48	291.9	189.5	08	342. 2	222.2	68	392.5	254.9	28	442.8	287. 5	88	493.1	$319.7 \\ 320.2$
49	292.7	190.0	09	343.0	222.7	69	393. 3	255.4	29	443.6	288.1	89	494.0	320.8
50	293.5	190.6	10	343.9	223, 3	70	394.2	255.9	30	444.5	288.6	90	494.8	321.3
351	294.4	191.1	411	344.7	223.8	471	395.0	256.5	531	445.3	289. 2	591	495.7	321.9
52	295. 2	191.7		345.5	224.4	72	395.8	257.0		446.1	289.7		496.5	322.4
53	296.1	192.2	13	346.4	224. 9	73	396.7	257.6	33	447.0	290. 3	93	497.3	322.9
54 55	296. 9	192.8	14	347. 2 348. 1	225. 4 226. 0	74	397. 5 398. 3	258. 1 258. 7	34	447.8	290.8	94 95	498. 1 499. 0	$323.5 \\ 324.1$
55 56	297.7 298.6	193.3 193.9	15 16	348.9	226. 5	75 76	399. 2	259. 2	35 36	448. 7 449. 5	$\begin{vmatrix} 291.4 \\ 291.9 \end{vmatrix}$	96	499. 8	324.1
57	299.4	194.4	17	349.7	$\begin{bmatrix} 220.3 \\ 227.1 \end{bmatrix}$	77	400.0	259. 8	37	450.3	292.5	97	500.6	325.1
58	300. 2	194. 9	18	350.6	227.6	78	400. 9	260.3	38	451.2	293. 0	98	501.5	325. 7
59	301.1	195.5	19	351.4	228, 2	79	401.7	260.9	39	452.0	293.6	99	502.3	326.2
60	301.9	196.0	20	352. 2	228.7	80	402.6	261.4	40	452.9	294.1	600	503. 2	326.8
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
I														

57° (123°, 237°, 303°).

Sept. 1

TABLE 2. Difference of Latitude and Departure for 34° (146°, 214°, 326°).

		-	Dinere	ence of 1	amuu	e and	Departe	ire for	94. (1	40°, 214	, 326).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.6	61	50.6	34.1	121	100.3	67.7	181	150. 1	101. 2	241	199.8	134.8
$\frac{2}{3}$	1. 7	1.1	62	51.4	34.7	22	101.1	68. 2	82	150.9	101.8	42	200.6	135.3
	$\frac{2.5}{2}$	$\begin{array}{c c} 1.7 \\ 2.2 \end{array}$	63	52. 2 53. 1	35. 2	23	102.0	68.8	83	151.7	102.3	43	201.5	135.9
4 5	$\frac{3.3}{4.1}$	$\frac{2.2}{2.8}$	$\frac{64}{65}$	53. 9	35. 8 36. 3	$\begin{array}{c} 24 \\ 25 \end{array}$	102. 8 103. 6	69.3 69.9	84 85	152. 5 153. 4	102.9 103.5	44 45	202. 3 203. 1	136. 4 137. 0
6	5. 0	3.4	66	54.7	36.9	26	104.5	70.5	86	154. 2	104.0	46	203. 1	137.6
7	5.8	3. 9	67	55. 5	37.5	27	105. 3	71.0	87	155.0	104.6	47	204.8	138.1
8	6.6	4.5	68	56.4	38.0	28	106. 1	71.6	88	155. 9	105.1	48	205.6	138.7
9	$\begin{array}{c} 7.5 \\ 8.3 \end{array}$	5. 0 5. 6	69 70	57. 2 58. 0	38.6	29 30	106.9	72.1	89	156. 7	105.7	49	206.4	139.2
11	$\frac{-0.3}{9.1}$	$\frac{6.0}{6.2}$	$\frac{70}{71}$	$\frac{58.0}{58.9}$	$\frac{39.1}{39.7}$	131	$\frac{107.8}{108.6}$	$\frac{72.7}{73.3}$	$\frac{90}{191}$	$\frac{157.5}{158.3}$	106. 2 106. 8	$\frac{50}{251}$	$\frac{207.3}{208.1}$	$\frac{139.8}{140.4}$
12	9.9	6.7	72	59.7	40.3	32	109.4	73.8	$\frac{131}{92}$	159. 2	107.4	52	208. 1	140. 9
13	10.8	7.3	73	60.5	40.8	33	110.3	74.4	93	160.0	107.9	53	209. 7	141.5
14	11.6	7.8	74	61.3	41.4	34	111.1	74.9	94	160.8	108.5	54	210.6	142.0
15 16	$12.4 \\ 13.3$	8.4 8.9	75 76	62. 2 63. 0	$\begin{array}{c} 41.9 \\ 42.5 \end{array}$	35	111. 9 112. 7	75.5	95	161.7	109.0	55	211.4	$142.6 \\ 143.2$
17	14.1	9.5	77	63.8	43.1	$\frac{36}{37}$	113.6	76. 1 76. 6	96 97	162. 5 163. 3	109.6 110.2	56 57	212.2 213.1	143. 7
18	14.9	10.1	78	64: 7	43.6	38	114.4	77. 2	98	164. 1	110.7	58	213. 9	144.3
19	15.8	10.6	79	65.5	44.2	39	115. 2	77.7	99	165.0	111.3	59	214.7	144.8
20	16.6	11.2	_80_	66.3	44.7	40	116.1	78.3	200	165.8	111.8	60	215.5	145.4
21	17.4	11.7	81	67. 2	45.3	141	116. 9	78. 8	201	166.6	112. 4 113. 0	261	216.4	145. 9
$\frac{22}{23}$	18. 2 19. 1	12.3 12.9	82 83	68. 0 68. 8	45.9 46.4	42 43	117. 7 118. 6	79. 4 80. 0	02 03	167. 5 168. 3	113.0	$\frac{62}{63}$	217. 2 218. 0	$146.5 \\ 147.1$
24	19. 9	13.4	84	69.6	47.0	44	119.4	80.5	04	169. 1	114.1	64	218. 9	147.6
25	20.7	14.0	85	70.5	47.5	45	120. 2	81.1	05	170.0	114.6	65	219.7	148. 2
26	21.6	14.5	86	71.3	48.1	46	121.0	81.6	06	170.8	115. 2	66	220.5	148.7
$\frac{27}{28}$	$\frac{22.4}{23.2}$	15. 1 15. 7	87	72.1 73.0	48.6 49.2	47	121.9 122.7	82. 2 82. 8	07	171.6 172.4	115.8 116.3	67 68	221. 4 222. 2	149.3 149.9
29	24. 0	16. 2	88 89	73.8	49.8	48 49	123.5	83.3	08 09	173.3	116. 9	69	223. 0	150.4
30	24. 9	16.8	90	74.6	50.3	$\hat{50}$	124. 4	83. 9	10	174.1	117.4	70	223. 8	151.0
31	25.7	17.3	91	75.4	50.9	151	125. 2	84.4	211	174.9	118.0	271	224.7	151.5
32	26. 5	17.9	92	76.3	51.4	52	126.0	85.0	12	175.8	118.5	72	225.5	152.1
33 34	$ \begin{array}{c c} 27.4 \\ 28.2 \end{array} $	18.5 19.0	93 94	77.1 77.9	$52.0 \\ 52.6$	53 54	126.8 127.7	85.6 86.1	13 14	176.6 177.4	119. 1 119. 7	• 73 • 74	226.3 227.2	152. 7 153. 2
35	29. 0	19.6	95	78.8	53. 1	55	128.5	86.7	15	178. 2	120. 2	75	228.0	153.8
36	29.8	20.1	96	79.6	53. 7	56	129.3	87.2	16	179.1	120.8	76	228.8	154.3
37	30.7	20.7	97	80.4	54.2	57	130. 2	87.8	17	179.9	121.3	77	229.6	154.9
38 39	$31.5 \\ 32.3$	21. 2	98 99	81. 2 82. 1	54.8	58 59	131. 0 131. 8	88.4	18 19	180. 7 181. 6	121.9 122.5	78 79	230. 5 231. 3	155. 5 156. 0
40	33. 2	22. 4	100	82. 9	55. 9	60	132.6	89.5	20	182.4	123.0	80	232. 1	156.6
41	34.0	22.9	101	83.7	56.5	161	133.5	90.0	221	183. 2	123.6	281	233.0	157.1
42	34.8	23.5	02	84.6	57.0	62	134.3	90.6	22	184.0	124.1	82	233.8	157.7
43 44	35. 6 36. 5	$\begin{bmatrix} 24.0 \\ 24.6 \end{bmatrix}$	$\begin{array}{c c} 03 \\ 04 \end{array}$	85. 4 86. 2	57. 6 58. 2	$\frac{63}{64}$	135. 1 136. 0	91. 1 91. 7	$\frac{23}{24}$	184. 9 185. 7	124. 7 125. 3	83 84	234. 6 235. 4	158.3 158.8
45	37.3	$\begin{vmatrix} 24.0 \\ 25.2 \end{vmatrix}$	05	87. 0	58.7	65	136.8	92.3	25	186.5	125.8	85	236. 3	159.4
46	38. 1	25. 7	06	87.9	59.3	66	137.6	92.8	26	187.4	126. 4	86	237.1	159.9
47	39.0	26.3	07	88. 7	59.8	67	138. 4	93.4	27	188.2	126. 9	87	237.9	160.5
48 49	39. 8 40. 6	$26.8 \\ 27.4$	08 09	89. 5 90. 4	60.4	68 69	139.3 140.1	93. 9 94. 5	28 29	189. 0 189. 8	127. 5 128. 1	88 89	238. 8 239. 6	161. 0 161. 6
50	41.5	28.0	10	91. 2	61.5	70	140. 1	95.1	30	190.7	128.6	90	240.4	162. 2
51	42.3	28.5	111	92.0	62. 1	171	141.8	95.6	231	191.5	129. 2 129. 7		241.2	162.7
52	43.1	29.1	12	92.9	62.6	72	142.6	96.2	32	192.3		92	242.1	163.3
53	43. 9	29.6	13	93.7	63. 2 63. 7	$\frac{73}{74}$	143.4	96. 7 97. 3	33	193. 2	130. 3 130. 9	93	$242.9 \\ 243.7$	163.8 164.4
54 55	44.8 45.6	30. 2 30. 8	14 15	$94.5 \\ 95.3$	64.3	74 75	144.3 145.1	97. 9	34 35	194. 0 194. 8	131.4	94 95	243.7	165.0
56	46.4	31.3	16	96. 2	64. 9	76	145. 9	98.4	36	195.7	132.0	96	245.4	165.5
57	47.3	31.9	17	97.0	65. 4	77	146.7	99.0	37	196.5	132.5	97	246. 2	166.1
58	48.1	32.4	18 19	97. 8 98. 7	66. 0 66. 5	78 79	147. 6 148. 4	99.5	$\begin{array}{c} 38 \\ 39 \end{array}$	197. 3 198. 1	133. 1 133. 6	98 99	$247.1 \\ 247.9$	166. 6 167. 2
. 60	48.9	33. 0 33. 6	20	98.7	67.1	80	148.4	100. 1	40	198.1	134. 2	300	247. 9	167. 2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

56° (124°, 236°, 304°).

Difference of Latitude and Departure for 34° (146°, 214°, 326°).

							_				_ 1	1		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	249.5	168. 3	361	299.3	201.9	421	349.0	235.4	481	398.8	269.0	541	448.5	302.5
02	250.4	168. 9	62	300.1	202.4	22	349.9	236.0	82	399.6	269.5	42	449.4	303.1
03	251.2	169.4	63	300.9	203.0	23	350.7	236.5	83	400.4	270.1	43	450. 2	303.6
04	252.0	170.0	64	301.8	203.5	24	351.5	237.1	84	401.3	270.6	44	451.0	304.2
05	252.9	170.6	65	302.6	204. 1	25	352. 3	237. 7	85	402.1	271. 2	45	451.8	304.8
06	253. 7	171.1	66	303. 4	204. 7	$\frac{26}{27}$	353.2 354.0	238. 2 238. 8	86 87	402. 9 403. 8	$271.8 \\ 272.3$	46 47	452. 6 453. 5	305. 3 305. 9
07	254. 5 255. 3	171.7 172.2	67 68	304. 3 305. 1	$\begin{vmatrix} 205.2 \\ 205.8 \end{vmatrix}$	28	354.8	239. 3	88	404.6	272.8	48	454.3	306. 4
08 09	256. 2	172. 8	69	305. 9	206.3	29	355. 7	239.9	89	405. 4	273.4	49	455. 2	307. 0
10	257. 0	173.3	70	306.7	206. 9	30	356.5	240. 4	90	406. 2	274.0	50	456.0	307.5
311	257.8	173.9	371	307.6	207.5	431	357.3	241.0	491	407.1	274.6	551	456.8	308. 1
12	258. 7	174.5	72	308. 4	208.0	32	358.1	241.6	92	407.9	275.1	52	457.6	308.7
13	259.5	175.0	73	309.2	208.6	33	359.0	242.1	93	408.7	275.7	53	458.4	309. 2
14	260.3	175.6	74	310.1	209.1	34	359.8	242.7	94	409.5	276. 2	54	459.3	309.8
15	261. 2	176.1	75	310. 9	209.7	35	360.6	243. 2	95	410.4	276.8	55	460.1	310.3
16	262. 0	176.7	76	311.7	210.3	36	$361.5 \\ 362.3$	243. 8 244. 4	96 97	411.2 412.0	$277.4 \\ 277.9$	56 57	460.9 461.7	$310.9 \\ 311.5$
17	262.8 263.7	177.31 177.8	77 78	312.6 313.4	$\begin{vmatrix} 210.8 \\ 211.4 \end{vmatrix}$	37 38	363. 1	244. 9	98	412.8	278.4	58	462. 6	312.0
18 19	264. 5	178.4	79	314. 2	211. 9	39	364. 0	245.5	99	413.7	279.0	59	463. 4	312.6
20	265. 3	178.9	80	315.0	212.5	40	364. 8	246.0	500	414.5	279.6	60	464. 2	313. 1
321	266. 1	179.5	381	315.9	213.0	441	365.6	246.6	501	415.3	280.1	561	465.1	313.7
22.	267. 0	180. 1	82	316. 7	213.6	42	366. 4	247.2	02	416.2	280.7	62	465.9	314.3
23	267.8	180.6	83	317.5	214.2	43	367.3	247.7	03	417.0	281.3	63	466.8	314.8
24	268.6	181.2	84	318. 4	214.7	44	368.1	248.3	04	417.8	281.8	64	467.6	315.4
25	₹269.5	181.7	85	319.2	215. 3	45	368. 9	248.8	05	418.6	282.4	65	468. 4	315.9
26	270.3	182.3	86	320.0	215.8	46	369.8	249.4	06	419.4	282. 9	66	469. 2	316.5
$\begin{bmatrix} 27 \\ 28 \end{bmatrix}$	$\begin{vmatrix} 271.1 \\ 271.9 \end{vmatrix}$	182.9 183.4	87 88	$320.8 \\ 321.7$	$216.4 \\ 217.0$	47 48	370.6 371.4	$\begin{vmatrix} 250.0 \\ 250.5 \end{vmatrix}$	07 08	420.3 421.1	$283.5 \\ 284.1$	67 68	470. 1 470. 9	317. 1 317. 6
28	272.8	184.0	89	322. 5	217.5	49	372.2	251.1	09	421. 9	284.6	69	471.7	318. 2
30	273.6	184.5	90	323. 3	218.1	50	373. 1	251.6	10	422.8	285. 2	70	472.6	318.7
331	274.4	185.1	391	324. 2	218.6	451	373.9	252.2	511	423.6	285.8	571	473.4	319.3
32	275. 2	185.6	92	325.0	219.2	52	374.7	252.8	12	424.4	286.3	72	474.2	319.9
33	276.1	186.2	93	325.8	219.8	53	375.6	253. 3	13	425.3	286.9	73	475.0	320.4
34	276.9	186.8	94	326.6	220.3	54	376.4	253.9	14	426. 1	287.4	74	475.9	321.0
35	277.7	187.3	95	327.5	220. 9	55	377.2	254.4	15	426.9	288.0	75	476.7	321.5
36	278.6	187. 9	96	328.3	$\begin{vmatrix} 221.4 \\ 222.0 \end{vmatrix}$	56	378.0	$ 255.0 \ 255.5 $	16	427.8	288.5 289.1	76 77	477.5	$322.1 \\ 322.7$
37 38	279. 4 280. 2	188. 4 189. 0	97 98	329. 1 330. 0	222.6	57 58	378. 9 379. 7	256.1	17 18	428. 6 429. 4	289.6	78	479. 2	323. 2
3 9	281.0	189.6	99	330.8	223.1	59	380.5	256.7	19	430.3	290. 2	79	480.0	323.8
40	281. 9	190.1	400	331.6	223.7	60	381.3	257. 2	20	431. 1	290.8	80	480.8	324.3
341	282.7	190.7	401	332.4	224.2	461	382. 2	257.8	521	431.9	291.3	581	481.6	324.9
42	283.5	191.2	02	333. 3	224.8	62	383.0	258.3	22	432.8	291.9	82	482.5	325.4
43	284.4	191.8	03	334.1	225.4	63	383.8	258.9	23	433.6	292.5	83	483.3	326.0
44	285.2	192.4	04	334.9	225.9	64	384.7	259. 5	24	434. 4	293.0	84	484.1	326.6
45	286.0	192.9	05	335.8	226.5	65	385.5	260.0	25	435.3	293.6	85	485.0	327. 2
46	286.9	193.5	06	336.6	$\begin{vmatrix} 227.0 \\ 227.6 \end{vmatrix}$	66	386.3 387.2	260.6	$\frac{26}{27}$	436. 1 436. 9	294. 1 294. 7	86 87	485. 8 486. 6	$\begin{vmatrix} 327.7 \\ 328.2 \end{vmatrix}$
47 48	287. 7 288. 5	194. 0 194. 6	07 08	337. 4 338. 3	228.1	68	388.0	$\begin{vmatrix} 261.1 \\ 261.7 \end{vmatrix}$	28	436. 9	294.7	88	480. 0	328. 2
49	289.3	195. 2	09	339.1	228.7	69	388.8	262. 3	29	438.6	295.8	89	488.3	329.4
50	290. 2	195. 7	10	339.9	229. 3	70	389.7	262.8	30	439.4	296.4	90	489. 2	329. 9
351	291.0	196.3	411	340.7	229.8	471	390.5	263.4	531	440.3	296.9	591	490.0	330.5
52	291.8	196.8	12	341.6	230.4	72	391.3	263.9	32	441.1	297.4	92	490.8	331.0
53	292.7	197.4	13	342.4	230.9		392.1	264.5		441.9	298.0		491.6	331.6
54	293.5	198.0		343.2	231.5	74	393.0	265.0	34	442.7	298.6	94	492.5	332. 2
55	294.3	198.5	15	344.1	232.1	75	393.8	265.6	35	443.6	299.1	95	493.3	332.7
56	295.1	199.1	16	344.9	$\begin{vmatrix} 232.6 \\ 233.2 \end{vmatrix}$	76 77	394.6	266. 2 266. 7	36 37	444. 4 445. 3	299.7	96	494. 1 494. 9	333. 3 333. 8
57 58	296. 0 296. 8	199.6 200.2	17 18	345. 7 346. 5	233. 7	78	395.5	267.3	.38	445.3	300. 2	97 98	494. 9	334.4
59	297.6	200. 2	19	347.4	234. 3	79.	397.1	267. 9	39	446. 9	301. 4	99	496.6	334. 9
60	298.5	201. 3		348.2	234. 9	80	397.9	268. 4	40	447.7	302.0	600	497.4	335.5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
		1	·				040 000			<u> </u>				,

56° (124°, 236°, 304°).

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TABLE 2.

Difference of Latitude and Departure for 35° (145°, 215°, 325°).

			ощеге	ince of i	airtuu	e and	Departi	101	00 (1	40 , 210	, 320	J• .		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.6	61	50.0	35.0	121	99.1	69.4	181	148.3	103.8	241	197.4	138. 2
2	1.6	1.1	62	50.8	35.6	22	99.9	70.0	82	149.1	104.4	42	198. 2	138.8
3	2.5	1.7	63	51.6	36.1	23	100.8	70.5	83	149.9	105.0	43	199.1	139.4
4	3.3	2.3	64	52. 4	36. 7	24	101.6	71.1	84	150. 7	105.5	44	199.9	140.0
5	4.1	2.9	65	53. 2	37.3	25	102.4	71. 7	85	151.5	106. 1	45	200. 7	140.5
6	4.9	3.4	66	54.1	37.9	26	103. 2	72.3	86	152.4	106. 7	46	201.5	141.1
7 8	5. 7 6. 6	4. 0 4. 6	67 68	54.9 55.7	38. 4 39. 0	$\frac{27}{28}$	104.0 104.9	72.8	87 88	153. 2 154. 0	107. 3 107. 8	47	202.3	141.7 142.2
9	7.4	5. 2	69	56.5	39.6	29	105.7	73.4	89	154. 8	107.8	48 49	203.1 204.0	142. 2
10	8. 2	5.7	70	57.3	40.2	30	106.5	74.6	90	155.6	109.0	50	204.8	143. 4
11	9.0	6.3	71	58. 2	40.7	131	107.3	75.1	191	156. 5	109.6	251	205. 6	144. 0
12	9.8	6. 9	72	59.0	41.3	32	108.1	75. 7	92	157. 3	110.1	52	206.4	144.5
13	10.6	7.5	73	59.8	41.9	33	108.9	76.3	93	158.1	110.7	53	207. 2	145.1
14	11.5	8.0	74	60.6	42.4	34	109.8	76.9	94	158.9	111.3	54	208.1	145.7
15	12.3	8.6	75	61.4	43.0	35	110.6	77.4	95	159.7	111.8	55	208.9	146.3
16	13.1	9.2	76	62.3	43, 6	36	111.4	78.0	96	160.6	112.4	56	209.7	146.8
17	13. 9	9.8	77	63.1	44. 2	37	112.2	78.6	97	161.4	113.0	57	210.5	147.4
18 19	14.7 15.6	10.3 10.9	78 79	63. 9 64. 7	44.7 45.3	38 39	113. 0 113. 9	79. 2 79. 7	98 99	162. 2 163. 0	113. 6 114. 1	58 59	211. 3 212. 2	148. 0 148. 6
20	16.4	11.5	80	65.5	45. 9	40	113. 9	80.3	200	163. 8	114. 1	60	213. 0	149.1
$\frac{20}{21}$	$\frac{10.4}{17.2}$	12.0	81	66. 4	46.5	141	115.5	80.9	$\frac{200}{201}$	164.6	115. 3	$\frac{-60}{261}$	213. 8	149.7
22	18. 0	12.6	82	67.2	47.0	42	116.3	81.4	02	165.5	115. 9	62	214.6	150.3
23	18.8	13. 2	83	68. 0	47.6	43	117.1	82. 0	03	166.3	116. 4	63	215. 4	150.9
24	19.7	13.8	84	68.8	48.2	44	118.0	82.6	04	167. 1	117. 0	64	216.3	151.4
25	20.5	14.3	85	69.6	48.8	45	118.8	83. 2	05	167. 9	117.6	65	217.1	152.0
26	21.3	14.9	86	70.4	49.3	46	119.6	83. 7	06	168.7	118. 2	66	217. 9	152.6
27	22.1	15.5	87	71.3	49.9	47	120.4	84.3	07	169.6	118.7	67	218.7	153.1
28 29	22. 9	16.1	88	$72.1 \\ 72.9$	50.5	48	121. 2	84.9	08	170.4	119.3	68	219.5	153.7
30	$23.8 \\ 24.6$	$16.6 \\ 17.2$	89 90	73. 7	51.0 51.6	49 50	$122.1 \\ 122.9$	85. 5 86. 0	09 10	171. 2 172. 0	$ 119.9 \\ 120.5 $	69 70	220.4 221.2	154.3 154.9
31	$\frac{24.6}{25.4}$	17.8	$\frac{-30}{91}$	$\frac{73.7}{74.5}$	52. 2	151	$\frac{122.3}{123.7}$	86.6	$\frac{10}{211}$	172.8	$\frac{120.0}{121.0}$	271	$\frac{221.2}{222.0}$	155.4
32	26. 2	18.4	92	75.4	52. 8	52	124.5	87.2	12	173.7	121.6	72	222. 8	156. 0
33	27. 0	18.9	93	76. 2	53.3	53	125.3	87.8	13	174.5	122. 2	73	223.6	156.6
34	27.9	19.5	94	77.0	53.9	54	126.1	88.3	14	175.3	122.7	74	224.4	157.2
35	28.7	20.1	95	77.8	54.5	55	127.0	88. 9	15	176.1	123.3	75	225.3	157.7
36	29.5	20.6	96	78.6	55.1	56	127.8	89.5	16	176.9	123.9	76	226. 1	158.3
37	30. 3	21.2	97	79.5	55.6	57	128.6	90.1	17	177.8	124.5	77	226. 9	158.9
38 39	31. 1 31. 9	$\begin{vmatrix} 21.8 \\ 22.4 \end{vmatrix}$	98 99	80. 3 81. 1	56. 2 56. 8	58 59	129. 4 130. 2	90.6 91.2	18 19	178.6 179.4	$\begin{vmatrix} 125.0 \\ 125.6 \end{vmatrix}$	78 79	227.7 228.5	159. 5 160. 0
40	32. 8	22. 9	100	81. 9	57. 4	60	131. 1	91.8	20	180. 2	126. 2	80	229. 4	160.6
41	33.6	23.5	101	82.7	57.9	161	131. 9	92.3	221	181. 0	126.8	281	230. 2	161.2
42	34.4	24.1	02	83.6	58.5	62	132. 7	92.9	22	181. 9	127.3	82	231.0	161.7
43	35. 2	24.7	03	84.4	59.1	63	133.5	93.5	23	182. 7	127.9	83	231.8	162.3 162.9
44	36. 0	25. 2	04	85.2	59.7	64	134.3	94.1	24	183. 5	128.5	84	232.6	162. 9
45	36. 9	25.8	05	86.0	60. 2	65	135.2	94.6	25	184.3	129.1	85	233. 5	163.5
46 47	37. 7 38. 5	$\begin{vmatrix} 26.4 \\ 27.0 \end{vmatrix}$	06	86. 8 87. 6	60.8 61.4	66 67	136.0	95. 2	26 27	185. 1 185. 9	129. 6 130. 2	86	234. 3 235. 1	164.0
48	39. 3	27.5	07 08	88.5	61. 9	68	136. 8 137. 6	95. 8 96. 4	28	185. 9	130. 2	88	235. 1	164. 6 165. 2
49	40. 1	28.1	09	89.3	62. 5	69	138.4	96. 9	29	187.6	131. 3	89	236. 7	165. 8
50	41. 0	28.7	10	90.1	63. 1	70	139.3	97.5	30	188. 4	131. 9	90	237.6	166.3
51	41.8	29.3	111	90.9	63. 7	171	140.1	98.1	231	189. 2	132. 5	291	238.4	166.9
52	42.6	29.8	12	91.7	64. 2	72	140.9	98.7	32	190.0	133.1	92	239. 2	167.5
53	43.4	30.4	13	92.6	64.8	73	141.7	99.2	33	190.9	133.6	93	240.0	168.1
54	44. 2	31.0	14	93.4	65.4	74	142.5	99.8	34	191.7	134. 2	94	240.8	168.6
55	45.1	31.5	15	94. 2	66.0	75 76	143. 4	100.4	35	192.5	134.8	95	241.6	169. 2
56 57	45. 9 46. 7	$\begin{vmatrix} 32.1 \\ 32.7 \end{vmatrix}$	16 17	95. 0 95. 8	66. 5 67. 1	76 77	144. 2 145. 0	100. 9 101. 5	36 37	193.3 194.1	135. 4 135. 9	96 97	242. 5 243. 3	169. 8 170. 4
58	47.5	33. 3	18	96. 7	67. 7	78	145. 8	101.3	38	195.0	136.5	98	244.1	170. 4
59	48.3	33.8	19	97.5	68.3	79	146.6	102. 7	39	195.8	137. 1	99	244. 9	171.5
60	49.1	34.4	20	98.3	68.8	80	147.4	103. 2	40	196.6	137. 7	300	245.7	172.1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						55° (1	25°, 2 35	°, 305°).					

TABLE 2.

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Difference of Latitude and Departure for 35° (145°, 215°, 325°).

			Diner	ence of .	Latitud	e and	Departi	ire for	55, (1	.45°, 218	, 325)•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	246.6	172. 6	361	295. 7	207.0	421	344.9	241.5	481	394.0	275.9	541	443. 2	310.3
02	247.4	173. 2	62	296.5	207.6	22	345. 7	242.0	82	394.8	276.4	42	444.0	310.9
03	248. 2	173.8	63	297.4	208. 2	23	346.5	242.6	83	395.7	277.0	43	444.8	311.4
04	249.0	174.3	64	298.2	208.8	24	347.3	243. 2	84	396.5	277. 6	44	445.6	312.0
05	249.9	$ 174.9 \\ 175.5 $	65	299. 0 299. 8	209. 3 209. 9	$\frac{25}{26}$	348. 1 349. 0	$\begin{vmatrix} 243.8 \\ 244.3 \end{vmatrix}$	85 86	397.3 398.1	278. 2 278. 7	45 46	446. 4 447. 3	312.6 313.2
06	$\begin{vmatrix} 250.7 \\ 251.5 \end{vmatrix}$	176.1	67	300.6	210.5	27	349.8	244. 9	87	398. 9	279.3	47	448.1	313. 7
08	252.3	176.6		301.5	211.1	28	350.6	245.5	88	399.8	279. 9	48	448.9	314.3
09	253.1	177.2	69	302.3	211.6	29	351.4	246.0	89	400.6	280.5	49	449.7	314.9
10	253.9	177.8	70	303.1	212. 2	30	352.2	246.6	90	401.4	281.0	50	450.5	315.4
311	254.8	178.4	371	303.9	212.8	431	353.1	247.2	491	402.2	281.6	551	451.4	316.0
12	255.6	178.9	72	304.7	213.4	32	353.9	247.8	92	403.0	282. 2	52	452. 2	316.6
13	256. 4	179.5	73	305.6	213.9	33	354.7	248.3	93	403.9	282.8	53	453.0	317. 2
14	257. 2	180. 1	74	306.4	214.5	34	355.5	248. 9	94	404.7	283.3	54	453.8	317.7
15 16	258. 0 258. 9	180.7 181.2	75 76	307. 2 308. 0	$\begin{vmatrix} 215.1 \\ 215.6 \end{vmatrix}$	35 36	356.3 357.2	249. 5 250. 1	95 96	405.5	283. 9 284. 5	55 56	454.6 455.5	318.3
17	259.7	181.8	77	308.8	216. 2	37	358.0	250. 6	97	407.1	285. 1	57	456.3	318. 9 319. 5
18	260.5	182. 4	78	309.6	216.8	38	358.8	251. 2	98	408.0	285.6	58	457.1	320.0
19	261.3	183.0	79	310.5	217. 4	39	359.6	251.8	99	408.8	286. 2	59	457.9	320.6
20	262.1	183.5	80	311.3	217.9	40	360.4	252.4	500	409.6	286.8	60	458.7	321. 2
321	263.0	184.1	381	312.1	218.5	441	361.3	252.9	501	410.4	287.4	561	459.6	321.8
22	263.8	184.7	82	312.9	219.1	42	362.1	253.5	02	411.2	287. 9	62.	460.4	322.3
23	264.6	185. 2 185. 8	83	313. 7	219.7 220.2	43	362.9	254. 1 254. 7	03	412.1 412.9	288.5	63	461. 2	322.9
24 25	265. 4 266. 2	186.4	84 85	314. 6 315. 4	220. 2	44 45	363. 7 364. 5	255. 2	04 05	413.7	289. 1 289. 7	64 65	462. 0 462. 8	323.5 324.1
$\frac{26}{26}$	267. 1	187. 0	86	316. 2	221.4	46	365. 4	255. 8	06	414.5	290. 2	66	463. 7	324. 6
27	267. 9	187.5	87	317.0	222.0	47	366. 2	256. 4	07	415.3	290.8	67	464.5	325. 2
28	268.7	188.1	88	317.8	222.5	48	367.0	256.9	08	416.1	291.4	68	465.3	325.8
29	269.5	188.7	89	318. 7	223.1	49	367. 8	257.5	09	417.0	291.9	69	466.1	326.4
30	270.3	189.3	90	319.5	223.7	50	368.6	258. 1	10	417.8	292.5	70	466.9	326.9
331	$271.1 \\ 272.0$	189. 8 190. 4	391 92	320.3 321.1	224.3 224.8	$\frac{451}{52}$	369. 4 370. 3	258. 7 259. 2	511 12	418.6	293. 1 293. 7	571 72	467. 8 468. 6	327.5
32 33	272.8	191.0	93	321.1 321.9	225.4	53	370.3	259. 8	13	$419.4 \\ 420.2$	294. 2	73	469.4	$\begin{vmatrix} 328.1 \\ 328.7 \end{vmatrix}$
34	273.6	191.6	94	322.8	226.0	54	371.9	260.4	14	421.1	294.8	74	470. 2	329. 2
35	274.4	192.1	95	323.6	226.5	55	372.7	261.0	15	421.9	295.4	75	471.0	329.8
36	275.2	192.7	96	324.4	227.1	56	373.5	261.5	16	422.7	296.0	76	471.9	330.4
37	276.1	193.3	97	325. 2	227.7	57	374.4	262.1	17	423.5	296.5	77	472.7	331.0
38 39	276. 9	193.9	98	326. 0	228. 3 228. 8	58 59	375. 2 376. 0	262. 7 263. 3	18	424. 3 425. 2	297.1	78	473.5	331.5
40.	277.7 278.5	194.4 $ 195.0 $	99 400	$326.9 \\ 327.7$	229. 4	60	376.8	263. 8	19 20	426. 0	297. 7 298. 3	79 80	474.3 475.1	332. 1 332. 7
341	279.3	195.6	401	328.5	230.0	461	377.6	$\frac{264.4}{264.4}$	$\frac{20}{521}$	426.8	$\frac{298.8}{298.8}$	581	476.0	333. 3
42	280. 2	196.1	02	329.3	230. 6	62	378.5	265.0	22	427.6	299.4	82	476.8	333.8
43	281.0	196.7	03	330.1	231.1	63	379.3	265.5	23	428.4	300.0	83	477.6	334.4
44	281.8	197.3	04	330.9	231.7	64	380.1	266.1	24	429.3	300.5	84	478.4	335.0
45	282.6	197. 9	05	331.8	232. 3	65	380. 9	266.7	25	430.1	301.1	85	479.2	335.6
46	283. 4	198.4	06	332.6	232. 9	66	381.7	267.3	26	430.9	301.7	86	480.1	336.1
47 48	284. 3 285. 1	199. 0 199. 6	07 08	333. 4 334. 2	233. 4 234. 0	67 68	382. 6 383. 4	267. 8 268. 4	$\frac{27}{28}$	431. 7 432. 5	302.3 302.8	87 88	480. 9 481. 7	336. 7 337. 3
49	285. 9	200. 2	09	335. 0	234.6	69	384. 2	269. 0	29	433.4	303. 4	89	482.5	337. 9
50	286.7	200. 7	10	335.9	235. 1	70	385.0	269.6	30	434. 2	304.0	90	483.3	338.4
351	287.5	201.3	411	336.7	235.7	471	385.8	270.1	531	435.0	304.5	591	484. 2	339.0
52	288.3	201.9			236. 3		386.6	270. 7	32		305. 1	92	485.0	339.6
53	289. 2	202.5	13	338.3	236.9	73	387.5	271.3	33	436.6	305.7	93	485.8	340. 2
54 55	290. 0 290. 8	203.0 203.6	14 15	339. 1 340. 0	237.4 238.0	74 75	388. 3 389. 1	$\begin{vmatrix} 271.9 \\ 272.4 \end{vmatrix}$	34 35	437. 5 438. 3	306.3 306.8	94 95	486.6	340.7 341.3
56	291.6	204. 2	16	340.8	238.6	76	389. 9	273. 0	36	439, 1	307. 4	96	487. 4 488. 3	341. 9
57	292.4	204.7	17	341.6	239. 2	77	390.7	273.6	37	439. 9	308.0	97	489.1	342.5
58	293.3	205. 3	18	$342.4 \\ 343.2$	239.7	78	391.6	274.2	38	440.7	308.6	98	489.9	343.0
59	294.1	205. 9	19	343.2	240.3	79	392.4	274. 7	39	441.5	309. 1	99	490.7	343.6
60	294.9	206.5	20	344.1	240.9	80	393. 2	275.3	40	442.3	309.7	600	491.5	344.1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
							P.					24000	Dop.	

55° (125°, 235°, 305°).

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TABLE 2.

Difference of Latitude and Departure for 36° (144°, 216°, 324°).

			Differen	51106 01 1	Lauruu	e and	Depart	ure for	3 0 (1	44 , 210	, 32+	١٠		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.6	61	49.4	35. 9	121	97.9	71.1	181	146. 4	106. 4	241	195.0	141.7
2	1.6	1.2	62	50.2	36.4	22	98.7	71.7	82	147. 2	107.0	42	195.8	142. 2
3	2.4	1.8	63	51.0	37.0	23	99.5	72.3	83	148.1	107.6	43	196.6	142.8
4	3.2	$\begin{array}{c c} 2.4 \\ 2.9 \end{array}$	64	51.8	37.6	$\frac{24}{25}$	100.3	72.9	84	148.9	108. 2	44	197.4	143.4
$\frac{5}{6}$	4.0 4.9	3.5	65 66	52. 6 53. 4	38. 2 38. 8	$\frac{25}{26}$	101. 1 101. 9	73.5	85 86	149. 7 150. 5	108. 7 109. 3	$\frac{45}{46}$	198. 2 199. 0	144. 0 144. 6
7	5.7	4.1	67	54. 2	39.4	$\frac{20}{27}$	101. 9	74.6	87	151.3	109. 5	47	199.0	145. 2
8	6.5	4.7	68	55. 0	40.0	28	103.6	75. 2	88	152. 1	110.5	48	200.6	145.8
9	7.3	5.3	69	55.8	40.6	29	104.4	75.8	89	152. 9	111.1	49	201.4	146.4
10	8.1	5.9	70	56.6	41.1	_ 30	105.2	76.4	90	153.7	111.7	50	202.3	146.9
11	8.9	6. 5	71	57.4	41.7	131	106.0	77.0	191	154.5	112.3	251	203.1	147.5
12	9. 7	7.1	72	58. 2	42.3	$\frac{32}{2}$	106.8	77.6	92	155.3	112.9	52	203. 9	148. 1
13	10.5	7.6	73	59.1	42.9	33	107.6	78. 2	93	156.1	113.4	53	204.7	148.7
14 15	11. 3 12. 1	8.2	74 75	59. 9	43.5	34	108. 4 109. 2	78.8	94	156.9	114. 0 114. 6	54	205.5	149.3
16	12. 1	9.4	76	60.7 61.5	44.7	35 36	110.0	79.4	95 96	157. 8 158. 6	115. 2	55 56	206. 3 207. 1	149. 9 150. 5
17	13.8	10.0	77	62. 3	45.3	37	110.8	80.5	97	159.4	115. 8	57	207. 9	151.1
18	14.6	10.6	78	63. 1	45.8	38	111.6	81.1	98	160. 2	116.4	58	208.7	151.6
19	15.4	11.2	79	63. 9	46.4	39	112.5	81.7	99	161.0	117.0	59	209.5	152. 2
20	16. 2	11.8	80	64.7	47.0	40	113.3	82.3	200	161.8	117.6	60	210.3	152.8
21	17.0	12.3	81	65. 5	47.6	141	114.1	82.9	201	162.6	118.1	261	211.2	153. 4
22	17.8	12. 9	82	66. 3	48.2	42	114.9	83, 5	02	163.4	118.7	62	212.0	154.0
23	18.6	13.5	83	67.1	48.8	43	115.7	84.1	03	164.2	119.3	63	212.8	154.6
$\begin{bmatrix} 24 \\ 25 \end{bmatrix}$	19.4 20.2	14.1 14.7	84	68. 0 68. 8	49. 4 50. 0	$\begin{array}{c} 44 \\ 45 \end{array}$	116.5 117.3	84.6	04	165. 0 165. 8	119.9	64	213. 6 214. 4	155. 2 155. 8
26	21. 0	15.3	85 86	69.6	50. 5	46	117.3	85. 2 85. 8	05 06	166.7	120.5 121.1	$\begin{array}{c} 65 \\ 66 \end{array}$	214. 4	156. 4
27	21. 8	15. 9	87	70.4	51.1	47	118.9	86.4	07	167.5	121. 7	67	216. 0	156. 9
28	22. 7	16.5	88	71.2	51.7	48	119.7	87.0	08	168.3	122.3	68	216.8	157.5
29	23.5	17.0	89	72.0	52.3	49	120.5	87.6	09	169.1	122.8	69	217.6	158.1
30	24.3	17.6	90	72.8	52.9	50	121.4	88. 2	10	169.9	123.4	70	218.4	158.7
31	25.1	18.2	91	73.6	53.5	151	122. 2	88.8	211	170.7	124.0	271	219. 2	159.3
32	25. 9	18.8	92	74.4	54.1	52	123.0	89.3	12	171.5	124.6	72	220.1	159.9
33 34	26.7 27.5	19. 4 20. 0	93	$75.2 \\ 76.0$	54. 7 55. 3	53 54	123.8 124.6	89.9	13	172.3 173.1	125. 2 125. 8	73 74	220. 9 221. 7	160.5
35	28.3	20.6	94 95	76. 9	55.8	55	125. 4	90.5	14 15	173. 1	126. 4	75	222.5	161.1
36	29. 1	21. 2	96	77.7	56.4	56	126. 2	91.7	16	174.7	127. 0	76	223. 3	161. 6 162. 2
37	29.9	21.7	97	78.5	57.0	57	127.0	92.3	17	175.6	127.5	77	224.1	162.8
38	30.7	22.3	98	79.3	57.6	- 58	127.8	92.9	18	176.4	128. 1	78	224.9	163. 4
39	31.6	22.9	99	80.1	58.2	59	128.6	93.5	19	177.2	128.7	79	225.7	164.0
40	32.4	23.5	100	80.9	58.8	60_	129.4	94.0	20	178.0	129.3	80	226.5	164.6
41	33. 2	24.1	101	81.7	59.4	161	130.3	94.6	221	178.8	129.9	281	227.3	165. 2
42	34.0	24.7	02	82.5	60.0	62	131.1	95. 2	22	179.6	130.5	82	228.1	165.8
43	34. 8 35. 6	25.3 25.9	03 04	83. 3 84. 1	60. 5 61. 1	$\begin{array}{c} 63 \\ 64 \end{array}$	131.9 132.7	95. 8 96. 4	23 24	180. 4 181. 2	131. 1 131. 7	83 84	229. 0 229. 8	166. 3 166. 9
45	36.4	26.5	05	84. 9	61.7	65	133.5	97.0	25	182.0	132.3	85	230.6	167.5
46	37. 2	27.0	06	85. 8	62.3	66	134.3	97.6	26	182.8	132.8	86	231. 4	168. 1
47	38. 0	27.6	07	86.6	62.9	67	135.1	98. 2	27	183.6	133.4	87	232. 2	168.7
48	38.8	28.2	08	87.4	63.5	68	135.9	98.7	28	184.5	134.0	88	233.0	169.3
49	39.6	28.8	09	88. 2	64.1	69	136.7	99.3	29	185.3	134.6	89	233.8	169.9
50	40.5	29.4	10	89.0	64.7	70	137.5	99.9	30	186.1	135. 2	90	234.6	170.5
51	41.3	30.0	111	89.8	65. 2	171	138.3	100.5	231	186.9	135.8	291	235.4	171.0
52	42.1	30.6	12	90.6	65.8 66.4	72	139. 2	101.1	32		136.4	92	236. 2	171.6
53 54	42.9 43.7	31. 2 31. 7	$\begin{array}{c c} 13 \\ 14 \end{array}$	$91.4 \\ 92.2$	67. 0	73 74	140. 0 140. 8	101.7 102.3	$\frac{33}{34}$	188. 5 189. 3	137.0 137.5	93 94	237.0 237.9	172. 2 172. 8
55	44.5	32. 3	15	93. 0	67.6	75	141.6	102. 3	35	190.1	138.1	95	238.7	173.4
56	45. 3	32. 9	16	93.8	68. 2	76	142.4	103.5	36	190. 9	138.7	96	239. 5	174.0
57	46.1	33.5	17	94.7	68.8	77	143.2	104.0	37	191.7	139.3	97	240.3	174.6
58	46.9	34.1	18	95.5	69.4	78	144.0	104.6	38	192.5	139.9	98	241.1	175. 2
59	47.7	34.7	19	96.3	69.9	79	144.8	105.2	39	193.4	140.5	99	241.9	175.7
60	48.5	35.3	20	97.1	70.5	80	145. 6	105.8	40	194. 2	141.1	300	242.7	176.3
Dict	Den	Tet	Diet	Den	Tet	Diet	Don	Tet	Diet	Den	Tet	Dist	Den	Tet
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						54° (1	26°, 234	°. 306°).					

54° (126°, 234°, 306°).

Difference of Latitude and Departure for 36° (144°, 216°, 324°).

							- Cross o		(,	,	, , , , , ,			
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	243.5	176.9	361	292.1	212. 2	421	340.6	247.5	481	389.1	282.7	541	437.7	318.0
02	244.3	177.5	62	292.9	212.8	22	341,4	248.1	82	390.0	283. 3.	42	438.5	318.6
03	245.1	178.1	63	293.7	213.4	23	342. 2	248.6	83	390.8	283.9	43	439.3	319.1
04	246.0	178.7	64	294.5	214.0	24	343.0	249.2	84	391.6	284.5	44	440.2	319.7
05	246.8	179.3	65	295.3	214.6	25	343.8	249.8	85	392.4	285.1	45	441.0	320.3
06	247.6	179.9	66	296.1	215. 1	26	344.7	250.4	86	393.2	285.6	46	441.8 442.6	320.9
07	248. 4 249. 2	180. 5 181. 1	67 68	296. 9 297. 7	$\begin{vmatrix} 215.7 \\ 216.3 \end{vmatrix}$	$\begin{array}{c} 27 \\ 28 \end{array}$	345. 5 346. 3	251. 0 251. 6	87 88	394. 0 394. 8	286. 2 286. 8	47 48	442.6	$\begin{vmatrix} 321.5 \\ 322.1 \end{vmatrix}$
08 09	250.0	181.6	69	298.5	216. 9	29	347.1	252. 2	89	395.6	287.4	49	443. 4 444. 2	322.7
10	250.8	182. 2	70	299.3	217.5	30	347. 9	252.8	90	396.4	288.0	50	445.0	323.3
311	251.6	182.8	371	300.2	218.1	431	348.7	253.3	491	397.3	288.6	551	445.8	323.8
12	252.4	183.4	72	301.0	218.7	32	349.5	253.9	92	398.1	289.2	52	446.6	324.4
13	253. 2	184.0	73	301.8	219.3	33	350.3	254.5	93	398. 9	289.8	53	447.4	325.0
14	254.0	184.6	74	302.6.	219.8	34	351.1	255.1	94	399.7	290.3	54	448.2	325.6
15	254.9	185.2	75 76	303.4	220.4 221.0	35	351.9	255.7	95	400.5	290. 9 291. 5	55 56	449.0	326.2
16 17	255.7 256.5	185.8 186.4	76 77	304. 2 305. 0	221.6	36 37	352. 7 353. 6	256. 3 256. 9	96 97	402.1	291. 3	56 57	449.8 450.7	$326.8 \\ 327.4$
18	257.3	186. 9	78	305.8	222. 2	38	354.4	257.5	98	402.9	292.7	58	451.5	328.0
19	258.1	187.5	79	306.6	222.8	39	355. 2	258.0	99	403.7	293.3	59	452.3	328.5
20	258.9	188.1	80	307.4	223.4	40	356.0	258.6	500	404.5	293.9	60	453.1	329. 1
321	259.7	188.7	381	308.2	224.0	441	356.8	259.2	501	405.3	294.5	561	453.9	329.7
22	260.5	189.3	82	309.1	224.5	42	357.6	259.8	02	406.1	295.0	62	454. 7 455. 5	330.3
23 24	261.3	189.9	83	309.9	225.1 225.7	43	358.4	260.4	03	407.0	295.6	63	455.5	330.9
25	262. 1 262. 9	190.5 191.0	84 85	310. 7 311. 5	226. 3	44 45	359. 2 360. 0	261. 0 261. 6	04	407. 8 408. 6	296. 2 296. 8	64 65	456.3	331. 5 332. 1
26	263. 7	191.6	86	312.3	226. 9	46	360.8	262. 2	06	409.4	297.4	66	457. 1 457. 9	332.7
27	264.6	192. 2	87	313. 1	227.5	47	361.6	262.8	07	410. 2	298.0	67	458.7	333.3
28	265.4	192.8	88	313.9	228.1	48	362.4	263.3	08	411.0	298.6	68	459.5	333.8
29	266. 2	193.4	89	314.7	228.7	49	363.3	263.9	09	411.8	299.2	69	460.3	334.4
30	267.0	194.0	90	315.5	$\frac{229.2}{222.2}$	50	364.1	264.5	10	412.6	299.8	70	461.1	335.0
$\frac{331}{32}$	267. 8 268. 6	194.6 195.2	$\frac{391}{92}$	316. 3 317. 1	229.8 230.4	451 52	364. 9 365. 7	265. 1 265. 7	$\begin{array}{c} 511 \\ 12 \end{array}$	413. 4 414. 2	300. 3 300. 9	571 72	462.0	335. 6 336. 2
33	269.4	195. 7	93	318.0	231.0	53	366.5	266.3	13	415. 1	301.5	73	462.8 463.6	336.8
34	270.2	196.3	94	318.8	231.6	54	367. 3	266.9	14	415.9	302.1	74	464.4	337.4
35	271.0	196.9	95	319.6	232.2	55	368.1	267.5	15	416.7	302.7	75	465.2	338.0
36	271.8	197.5	96	320.4	232.8	56	368.9	268.0	16	417.5	303.3	76	466.0	338.5
37	272.6	198.1	97	321.2	233.4	57	369.7	268.6	17	418.3	303.9	77	466.8	339.1
38 39	273.5 274.3	198.7 199.3	98 99	$322.0 \\ 322.8$	233. 9 234. 5	58 59	370. 5 371. 3	269. 2 269. 8	18 19	419. 1 419. 9	304. 4 305. 0	78 79	467. 6 468. 4	339. 7 340. 3
40	275. 1	199.9	400	323.6	235. 1	60	372. 2	270.4	20	420.7	305.6	80	469.3	340. 9
341	275.9	200.4	401	324.4	235.7	461	373.0	271.0	521	421.5	306. 2	581	470.1	341.5
42	276.7	201.0	02	325. 2	236. 3	62	373.8	271.6	22	422.3	306.8	82	470.9 471.7	342.1
43	277.5	201.6	03	326.0	236.9	63	374.6	272.2	23	423.1	307.4	83	471.7	342.7
44	278. 3	202. 2	04	326.9	237.5	64	375.4	272.7	24	423. 9	308.0	84	472.5 473.3	343. 2
45	$279.1 \\ 279.9$	$\begin{vmatrix} 202.8 \\ 203.4 \end{vmatrix}$	05 06	$327.7 \\ 328.5$	$238.1 \\ 238.7$	65	376. 2	273.3 273.9	25	424. 7 425. 5	$308.6 \\ 309.2$	85	473.3	343.8
47	280. 7	204.0	07	329.3	239. 2	66 67	$377.0 \\ 377.8$	274.5	26 27	426.4	309. 7	86 87	474.1	344. 4 345. 0
48	281.5	204.6	08	330. 1	239.8	68	378.6	275.1	28	427. 2	310.3	88	474. 9 475. 7	345.6
49	282.4	205.1	09	330.9	240.4	69	379.4	275.7	2 9	428.0	310.9	89	476.5	346. 2
_50	283. 2	205. 7	10	331.7	241.0	70	380.2	276.3	30	428.8	311.5	90	477.3	346.8
351	284.0	206.3	411	332.5	241.6	471	381.1	276.9	531	429.6	312.1	591	478.2	347. 4
52	284.8	206.9			242.2	72	381. 9	277.4	32	430.4	312.7	92	479.0	347.9
53 54	285. 6 286. 4	207. 5 208. 1	13 14	334. 1 334. 9	242. 8 243. 4	73 74	382: 7 383. 5	$\begin{vmatrix} 278.0 \\ 278.6 \end{vmatrix}$	33 34	431. 2 432. 0	313. 3 313. 9	93	479.8	348.5
55	287. 2	208. 7	15	335.8	243. 9	75	384.3	279.2	35	432.9	314. 4	94 95	480. 6 481. 4	$\begin{vmatrix} 349.1 \\ 349.7 \end{vmatrix}$
56	288.0	209.3	16	336.6	244.5	76	385. 1	279.8	36	433. 7	315.0	96	482. 2	350.3
57	288.8	209.8	17	337.4	245.1	77	385.9	280.4	37	434.5	315.6	97	483.0	350.9
58	289.6	210.4	18	338. 2	245.7	78	386.7	281.0	38	435.3	316.2	98	483.8	351.5
59 60	290. 4 291. 3	$\begin{vmatrix} 211.0 \\ 211.6 \end{vmatrix}$	19 20	339. 0 339. 8	246. 3 246. 9	79 80	387.5	281.6	39	436.1	316.8	99	484.6	352.1
00	201.0	211.0	20	000.0	440. 9	00	388.3	282.1	40	436.9	317.4	600	485.4	352.7
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	<u> </u>							اـــــــــــــــــــــــــــــــــــــ		F ·			P.	
						54° (1	26°, 234	°, 306°).					

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TABLE 2.

Difference of Latitude and Departure for 37° (143°, 217°, 323°).

		<u> </u>	лиеге.	nce of L	annude	anu .	Departu	16 101 5), (1,	45', 217	, 525)•		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.6	61	48.7	36.7	121	96.6	72.8	181	144.6	108.9	241	192.5	145.0
2	1.6	1.2	• 62	49.5	37.3	22	97.4	73.4	82	145.4	109.5	42	193.3	145.6
3	2.4	1.8	63	50.3	37. 9	23	98. 2	74.0	83	146. 2	110.1	43	194.1	146. 2
4	3.2	2.4	64	51.1	38.5	24	99.0	74.6	84	146.9	110.7	44	194.9	146.8
5 6	4.0 4.8	3.0	65 66	51.9 52.7	39. 1 39. 7	$\begin{array}{c} 25 \\ 26 \end{array}$	99.8 100.6	75. 2 75. 8	85 86	147. 7 148. 5	111.3 111.9	45 46	195. 7 196. 5	147.4 148.0
7	5.6	4.2	67	53. 5	40.3	27	101.4	76.4	87	149.3	112.5	47	197.3	148.6
8	6. 4	4.8	68	54.3	40.9	28	102. 2	77.0	88	150.1	113.1	48	198.1	149.3
9	7.2	5.4	69	55.1	41.5	29	103.0	77.6	89	150.9	113.7	49	198.9	149.9
10	8.0	6.0	70	55.9	42.1	30	103.8	78.2	90	151.7	114.3	50	199.7	150.5
11	8.8	6.6	71	56. 7	42.7	131	104.6	78.8	191	152.5	114.9	251	200.5	151.1
12	9.6	7.2	72	57.5	43.3	32	105. 4	79.4	92	153.3	115.5	52	201.3	151.7
13 14	$10.4 \\ 11.2$	7. 8 8. 4	73 74	58. 3 59. 1	43. 9 44. 5	33 34	106. 2 107. 0	80. 0 80. 6	$\frac{93}{94}$	154. 1 154. 9	116. 2 116. 8	53 54	202. 1 202. 9	152.3 152.9
15	12.0	9.0	75	59. 1	45.1	$\frac{34}{35}$	107. 8	81. 2	95	155.7	117.4	55	202. 9	153.5
16	12.8	9.6	76	60.7	45. 7	36	108.6	81.8	96	156.5	118.0	56	204. 5	154. 1
17	13.6	10. 2	77	61.5	46.3	37	109.4	82. 4	97	157.3	118.6	57	205. 2	154. 7
18	14.4	10.8	78	62.3	46.9	38	110.2	83.1	98	158. 1	119. 2	58	206.0	155.3
19	15. 2	11.4	79	63. 1	47.5	39	111.0	83.7	99	158.9	119.8	59	206.8	155. 9
20	16.0	12.0	80	63. 9	48.1	40	111.8	84.3	200	159.7	120. 4	60	207.6	156.5
21	16.8	12.6	81	64. 7	48.7	141	112.6	84.9	201	160.5	121.0	261	208. 4	157. 1
22 23	17. 6 18. 4	13.2	82 83	65. 5 66. 3	49. 3 50. 0	42	113.4	85.5	02	161.3 162.1	121.6 122.2	62 63	209. 2 210. 0	157. 7 158. 3
24	19. 2	13.8 14.4	84	67. 1	50.6	43 44	114. 2 115. 0	86. 1 86. 7	03 04	162.1	122. 2	64	210. 0	158. 9
25	20.0	15.0	85	67. 9	51.2	45	115.8	87.3	05	163.7	123. 4	65	211.6	159.5
26	20.8	15.6	86	68. 7	51.8	46	116.6	87. 9	06	164.5	124.0	66	212.4	160.1
27	21.6	16, 2	87	69.5	52.4	47	117.4	88.5	07	165. 3	124.6	67	213. 2	160.7
28	22.4	16.9	88	70.3	53.0	48	118.2	89.1	08	166.1	125.2	68	214.0	161.3
29	23. 2	17.5	89	71.1	53.6	49	119.0	89.7	09	166. 9	125.8	69	214.8	161. 9
30	24.0	18.1	90	71.9	54. 2	50	119.8	90.3	10	167.7	126. 4	70	215.6	162.5
31 32	24.8	18.7	91	72.7	54.8	151	120.6	90.9	211	168.5	127.0 127.6	$\frac{271}{79}$	216. 4 217. 2	163. 1
33	$25.6 \\ 26.4$	19.3 19.9	92 93	73. 5 74. 3	55. 4 56. 0	52 53	121. 4 122. 2	91. 5 92. 1	12 13	169.3 170.1	$ 127.0 \\ 128.2 $	72 73	218. 0	163. 7 164. 3
34	27. 2	20. 5	94	75. 1	56.6	54	123.0	92. 7	14	170.9	128.8	74	218.8	164. 9
35	28.0	21.1	95	75. 9	57. 2	55	123.8	93. 3	15	171.7	129. 4	75	219.6	165.5
36	28.8	21.7	96	76.7	57.8	56	124.6	93. 9	16	172.5	130.0	76	220, 4	166. 1
37	29.5	22.3	97	77.5	58. 4	57	125.4	94.5	17	173.3	130.6	77	221. 2	166. 7
38	30.3	22.9	98	78.3	59.0	58	126.2	95. 1	18	174.1	131. 2	78	222.0	167.3
39	31. 1 31. 9	$23.5 \\ 24.1$	99 100	79. 1 .79. 9	59. 6 60. 2	59 60	127.0 127.8	95. 7 96. 3	19 20	174.9 175.7	131. 8 132. 4	79 80	222. 8 223. 6	167. 9 168. 5
41	$\frac{31.3}{32.7}$	$\frac{24.1}{24.7}$	101	80.7	60. 8	161	128.6	96.9	$\frac{20}{221}$	176.5	133.0	281	224. 4	169.1
42	33. 5	25. 3	02	81.5	61.4	62	129. 4	97.5	22	177.3	133. 6	82	225. 2	169.7
43	34. 3	25. 9	03	82.3	62.0	63	130. 2	98.1	23	178.1	134. 2	83	226.0	170.3
44	35. 1	26.5	04	83.1	62.6	64	131.0	98.7	24	178.9	134.8	84	226.8	170.9
45	35.9	27.1	05	83.9	63. 2	65	131.8	99.3	25	179.7	135. 4	85	227. 6	171.5
46	36.7	27.7	06	84.7	63. 8	66	132.6	99.9	26	180.5	136.0	86	228.4	172.1
47	37.5	28.3	07	85.5	64.4	67	133.4	100.5	27	181.3	136. 6 137. 2	87	229. 2 230. 0	172. 7 173. 3
48 49	38. 3 39. 1	28. 9 29. 5	08 09	86. 3 87. 1	65. 0 65. 6	68	134. 2 135. 0	101. 1 101. 7	28 29	182. 1 182. 9	137. 8	88 89	230. 0	173. 9
50	39. 9	30. 1	10	87.8	66.2	70	135.8	102. 3	30	183: 7	138. 4	90	231.6	174.5
51	40.7	30.7	111	88.6	66.8	171	136.6	102.9	231	184.5	139.0	291	232. 4	175.1
52	41.5	31.3	12	89.4	67.4	72	137, 4	103.5	32	185. 3	139.6		233. 2	175.7
53	42.3	31.9	13	90. 2	68. 0	73	138. 2	104.1	33	186. 1	140. 2	93	234.0	176.3
54	43.1	32.5	14	91.0	68.6	74	139.0	104.7	34	186.9	140.8	94	234.8	176. 9
55	43.9	33.1	15	91.8	69.2	75 76	139.8	105.3	35	187.7	141. 4 142. 0	95 96	235. 6 236. 4	177. 5 178. 1
56 57	44. 7 45. 5	33. 7 34. 3	16 17	92. 6 93. 4	69. 8 70. 4	76 77	140.6 141.4	105. 9 106. 5	36 37	188. 5 189. 3	142. 6	97	230.4 237.2	178. 7
58	46.3	34. 9	18	94. 2	71.0	78	142. 2	100.3	38	190.1	143. 2	98	238.0	179.3
59	47.1	35.5	19	95. 0	71.6	79	143.0	107. 7	39	190. 9	143.8	99	238. 8	179.9
60	47. 9	36. 1	20	95.8	72. 2	80	143.8	108.3	40	191.7	144.4	300	239. 6	180. 5
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						53° (1	27°, 23	3°, 307	?).					

Difference of Latitude and Departure for 37° (143°, 217°, 323°).

			Diner	ence or .	Latitud	- and	Depart		- (, 21	, , 520	,.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	240. 4	181.1	361	288.3	217. 3	421	336. 2	253. 4	481	384. 1	289.5	541	432.0	325.6
02	241. 2	181.7	62	289.1	217. 9	22	337.0	254.0	82	384.9	290.0	42	432.8	326. 2
03	242.0	182.4	63	289.9	218.5	23	337.8	254.6	83	385.7	290.6	43	432. 8 433. 6	326.8
04	242.7	183.0	64	290.7	219.1	24	338.6	255. 2	84	386.5	291.2	44	434.4	327.3
05	243.5	183.6	65	291.5	219.7	25	339.4	255.8	85	387.3	291.8	45	435.2	327. 9
06	244.3	184. 2	66	292.3	220.3	26	340.2	256. 4	86	388.1	292.4	46	436.0	328.5
07	245.1	184.8	67	293.1	220.9	27	341.0	257.0	87	388.9	$\begin{vmatrix} 293.0 \\ 293.6 \end{vmatrix}$	47	436.8	329.1
08	245.9 246.7	185. 4 186. 0	68 69	293. 9 294. 7	221.5 222.1	28 29	341. 8 342. 6	257. 6 258. 2	88 89	389. 7 390. 5	294. 2	48 49	437. 6 438. 4	329. 7 330. 3
09 10	247.5	186.6	70	295.5	222. 7	30	343.4	258.8	90	391.3	294.8	50	439. 2	330. 9
311	248.3	$\frac{180.0}{187.2}$	371	296.3	$\frac{223.3}{223.3}$	431	344. 2	$\frac{259.4}{259.4}$	491	392.1	295.4	551	440.0	331.5
12	249.1	187. 8	72	297.1	223. 9	32	345.0	260.0	92	392. 9	296.0	52	440.8	332.1
13	249.9	188.4	73	297.9	224.5	33	345.8	260.6	93	393. 7	296.6	53	441.6	332.7
14	250.7	189.0	74	298.7	225. 1	34	346.6	261. 2	94	394.5	297.2	54	442.4	333.3
15	251.5	189.6	75	299.5	225. 7	35	347.4	261.8	95	395.3	297.8	55	443. 2	333. 9
16	252.3	190. 2	76	300.3	226.3	36	348.2	262.4	96	396.1	298.5	56	444.0	334.6
17	253.1	190.8	77	301.1	$\begin{vmatrix} 226.9\\ 227.5 \end{vmatrix}$	37	349.0	263.0	97	396.9	299. 1	57	444.8	235. 2
18	253. 9	191.4	78	301.8	227.5	38	349.8	263.6	98	397.7	299.7	58	445.6	335.8
19 20	254. 7 255. 5	192. 0 192. 6	79 80	302.6	$\begin{vmatrix} 228.1 \\ 228.7 \end{vmatrix}$	39 40	350. 6 351. 4	264. 2 264. 8	99 500	398.5 399.3	300.3	59 60	446. 4 447. 2	336.4 337.0
		193. 2		304. 2	$\frac{220.7}{229.3}$		$\frac{351.4}{352.2}$	265. 4	501	400.1	301.5	561	448.0	337.6
$\frac{321}{22}$	256. 3 257. 1	193. 2	$\frac{381}{82}$	304. 2	$\begin{vmatrix} 229.3 \\ 229.9 \end{vmatrix}$	441 42	353.0	266. 0	02	400.1	302. 1	$\frac{561}{62}$	448.8	338. 2
23	257. 9	194.4	83	305.8	230. 5	43	353.8	266.6	03	401.7	302. 7	63	449.6	338.8
24	258. 7	195.0	84	306.6	231.1	44	354.6	267. 2	04	402.5	303.3	64	450.4	339.4
25	259.5	195.6	85	307.4	231.7	45	355. 4	267. 8	05	403.3	303. 9	65	451. 2 452. 0	340.0
26	260.3	196.2	86	308. 2	232.3	46	356.2	268.4	06	404.1	304.5	66	452.0	340.6
27	261.1	196.8	87	309.0	232. 9	47	357.0	269.0	07	404.9	305. 1	67	452.8	341.2
28	261.9	197.4	88	309.8	233.5	48	357.8	269.6	08	405.7	305. 7	68	453.6 454.4	341. 8 342. 4
29 30	262. 7 263. 5	198.0 198.6	89 90	310.6 311.4	234. 1 234. 7	49 50	358.6 359.4	270. 2 270. 8	09 10	406.5	306. 3 306. 9	69 70	455. 2	343. 0
331	264.3	$\frac{199.0}{199.2}$	391	312. 2	235.3	451	360.1	$\frac{270.6}{271.4}$	511	408.1	307.5	571	456.0	343.6
32	265.1	199.8	92	313.0	235. 9	52	360. 9	272. 0	12	408.9	308. 2	72	456.8	344.3
33	265. 9	200.4	93	313.8	236.5	53	361.7	272.6	13	409.7	308.8	73	457.6	344.9
34	266.7	201.0	94	314.6	237.1	54	362.5	273.2	14	410.5	309.4	74	458.4	345.5
35	267.5	201.6	95	315.4	237. 7	55	363.3	273.8	15	411.3	310.0	75	459.2	346.1
36	268. 3	202. 2	96	316. 2	238.3	56	364.1	274.4	16	412.1	310.6	76	460.0	346.7
37 38	269.1	202.8	97	317.0	238. 9	57 58	364. 9 365. 7	275.0 275.6	17	412. 9 413. 7	311. 2	77 78	460.8	347.3
39	269. 9 270. 7	$\begin{vmatrix} 203.4 \\ 204.0 \end{vmatrix}$	98 99	317. 8 318. 6	$\begin{vmatrix} 239.5 \\ 240.1 \end{vmatrix}$	59	366. 5	276. 2	18 19	414.5	311. 8 312. 4	79	462.4	347. 9 348. 5
40	271.5	204.6	400	319.4	240. 7	60	367.3	276. 8	20	415.3	313.0	80	463. 2	349.1
341	272.3	205. 2	401	320. 2	241.3	$\frac{-33}{461}$	368.1	$\frac{277.4}{277.4}$	521	416.1	313.6	581	464.0	349.7
42	273. 1	205. 8	02	321.0	241.9	62	368.9	278.0	22	416.9	314. 2	82	464.8	350.3
43	273.9	206.4	03	321.8	242.5	63	369.7	278.6	23	417.7	314.8	83	465.6	350.9
44	274.7	207.0	(4	322.6	243.1	64	370.5 371.3	279.2	24	418.5	315.4	84	466.4	351.5
45	275.5	207. 6	05	323.4	243.7	65	371.3	279.8	25	419.3	316.0	85	467. 2	352.1
46	276.3	208. 2	06	324. 2	244.3	66	372.1	280.4	26	420.1	316.6	86	468.0	352.7
47	277.1	208.8	07	325.0	244.9 245.5	67	372.9 373.7	281. 0 281. 6	27 28	420.9	$\begin{vmatrix} 317.2 \\ 317.8 \end{vmatrix}$	87	468.8 469.6	353.3
48 49	277. 9 278. 7	209.4 210.0	-08 09	325.8 326.6	246. 1	68 69	374.5	281. 0	28	$421.7 \\ 422.5$	318.4	88 89	409.6	353. 9 354. 5
50	279.5	210.6	10	327.4	246. 7	70	375.3	282. 9	30	423. 3	319.0	90	471.2	355.1
351	280.3	$\frac{210.0}{211.2}$	411	328. 2	$\frac{247.3}{247.3}$	471	376.1	283.5	531	424.1	319.6	591	472.0	355.7
52	281.1	211.8	12		247. 9		376. 9	284.1	32	424. 9	320. 2			356.3
53	281.9	212.4	13	329.8	248.5	73	377.7	284.7	33	425.7	320.8	93	473.6	356. 9
54	282. 7	213.0	14	330.6	249.2	74	378.5	285.3	34	426.5	321.4	94	474.4	357.5
55	283.5	213.6	15	331.4	249.8	75 76	379.3	285.9	35	427.3	322.0	95	475. 2	358.1
56	284.3 285.1	$\begin{vmatrix} 214.2\\ 214.8 \end{vmatrix}$	16	332. 2 333. 0	$\begin{vmatrix} 250.4 \\ 251.0 \end{vmatrix}$	76 77	380. 1 380. 9	286.5 287.1	36 37	428. 1 428. 9	322. 6 323. 2	96	476. 0 476. 8	358.7
57 58	285. 1	214.8 215.4	17 18	333.8	251.0 251.6	78	380.9	287.1 287.7	38	428. 9	323. 2	97 98	476.8	359.3 359.9
59	286. 7	216. 1	19	334.6	252. 2	79	382.5	288.3	39	430. 5	324. 4	99	478.4	360.5
60	287.5	216. 7	20	335.4	252.8	80	383.3	288. 9	. 40	431.3	325.0	600	479. 2	361.1
_														
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	,				!	530 (1	27° 233	° 307°)					

53° (127°, 233°, 307°).

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TABLE 2.

Difference of Latitude and Departure for 38° (142°, 218°, 322°).

			Dinere	ince of i	Daniuu	e and	Departi	116 101	30 (.	142 , 210	5,322	<i>)</i> •		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.6	61	48.1	37.6	121	95. 3	74.5	181	142.6	111.4	241	189. 9	148. 4
$\overline{2}$	1.6	1.2	62	48. 9	38. 2	$2\hat{2}$	96.1	75.1	82	143. 4	112.1	42	190.7	149.0
3	2.4	1.8	63	49.6	38.8	23	96.9	75.7	83	144.2	112.7	43	191.5	149.6
4	3. 2	2.5	64	50.4	39.4	24	97.7	76.3	84	145.0	113.3	44	192. 3	150.2
5	3.9	3.1	65	51.2	40.0	25	98.5	77.0		145.8	113.9	45	193.1	150.8
6	4.7	3.7	66	52.0	40.6	26	99.3	77.6	86	146.6	114.5	46	193.9	151.5
7 8	5. 5 6. 3	4.3 4.9	67 68	52. 8 53. 6	41. 2 41. 9	$\begin{array}{c} 27 \\ 28 \end{array}$	100. 1 100. 9	78. 2 78. 8	87 88	147. 4 148. 1	115. 1 115. 7	47 48	194.6	152. 1 152. 7
9	7.1	5.5	69	54.4	42.5	$\frac{20}{29}$	100. 5	79.4	89	148.9	116. 4	49	195. 4 196. 2	153. 3
10	7. 9	6. 2	70	55. 2	43. 1	30	102.4	80.0	90	149.7	117.0	50	197.0	153. 9
11	8.7	6.8	$\overline{71}$	55. 9	43.7	131	103.2	80.7	191	150.5	117.6	251	197.8	154.5
12	9.5	7.4	$7\overline{2}$	56.7	44.3	32	104.0	81.3	92	151. 3	118. 2	52	198.6	155.1
13	10.2	8.0	73	57.5	44.9	33	104.8	81.9	93	152. 1	118.8	53	199.4	155.8
14	11.0	8.6	74	58. 3	[45, 6]	34	105.6	82.5	94	152. 9	119.4	54	200.2	156.4
15	11.8	9.2	75	59.1	46. 2 46. 8	35	106. 4	83.1	95	153. 7	120. 1	55	200.9	157.0
16	12.6	9.9	76	59. 9	46.8	36	107. 2	83. 7	96	154.5	120.7	56	201.7	157.6
17 18	13. 4 14. 2	10. 5 11. 1	77 78	60. 7 61. 5	47. 4 48. 0	37 38	108. 0 108. 7	84. 3 85. 0	97 98	155. 2 156. 0	121. 3 121. 9	57 58	202. 5 203. 3	158. 2
19	15.0	11.7	79	62.3	48.6	39	109.5	85.6	99	156.8	121.9 122.5	59	203. 3	158. 8 159. 5
20	15.8	12.3	80	63. 0	49.3	40	110.3	86. 2	200	157.6	123.1	60	204. 1	160.1
$\frac{-20}{21}$	16.5	12. 9	81	63.8	49. 9	141	111.1	86.8	201	158. 4	$\frac{123.1}{123.7}$	261	$\frac{201.0}{205.7}$	160.7
$\tilde{2}\tilde{2}$	17.3	13. 5	82	64.6	50.5	42	111.9	87. 4	02	159. 2	124.4	62	206. 5	161.3
23	18. 1	14.2	83	65.4	51.1	43	112.7	88.0	03	160.0	125.0	63	207. 2	161.9
24	18.9	14.8	84	66. 2	51.7	44	113.5	88.7	04	160.8	125.6	64	208.0	161. 9 162. 5
25	19. 7	15. 4	85	67.0	52.3	45	114.3	89.3	05	161.5	126.2	65	208.8	163. 2
26	20.5	16.0	86	67.8	52.9	46	115.0	89.9	06	162.3	126.8	66	209.6	163.8
27	21.3	16.6	87	68.6	53.6	47	115.8	90.5	07	163.1	127.4	67	210.4	164.4
28 29	$22.1 \\ 22.9$	17. 2	88 89	69.3	54.2	48	116.6	91.1	08	163.9	128.1	68	211.2	165.0
30	23. 6	17. 9 18. 5	90	70. 1 70. 9	54.8 55.4	4 9 50	117. 4 118. 2	91.7 92.3	09 10	164.7 165.5	128.7 129.3	69 70	212. 0 212. 8	165. 6 166. 2
31	24. 4	19.1	$\frac{-30}{91}$	$\frac{70.3}{71.7}$	56.0	151	119.0	93.0	211	166.3	$\frac{120.3}{129.9}$	271	213.6	166. 8
32	25. 2	19.7	92	72.5	56.6	52	119.8	93. 6	12	167.1	130. 5	72	214.3	167.5
33	26.0	20.3	93	73.3	57.3	53	120.6	94. 2	13	167.8	131.1	73	215. 1	168.1
34	26.8	20. 9	94	• 74.1	57. 9 58. 5	54	121.4	94.8	14	168.6	131.8	74	215. 9	168.7
35	27.6	$21.5 \\ 22.2$	95	74. 9	58.5	55	122.1	95.4	15	169.4	132.4	75	216.7	169.3
36	28.4	22. 2	96	75.6	59. 1	56	122.9	96.0	16	170. 2	133.0	76	217.5	169. 9
37	29. 2	22.8	97	76.4	59.7	57	123.7	96.7	17	171.0	133.6	77	218.3	170.5
38 39	29. 9 30. 7	23. 4 24. 0	98 99	77. 2 78. 0	60.3 61.0	58 59	$124.5 \\ 125.3$	97. 3 97. 9	18 19	171.8 172.6	134. 2 134. 8	78 79	219. 1 219. 9	171. 2 171. 8
40	31.5	24.6	100	78.8	61.6	60	126. 1	98.5	$\frac{19}{20}$	173.4	135.4	80	220.6	172.4
41	$\frac{32.3}{32.3}$	25. 2	101	79.6	62. 2	161	126. 9	99. 1	221	174.2	$\frac{136.1}{136.1}$	281	221.4	173.0
42	33. 1	25. 9	02	80.4	62.8	62	127.7	99. 7	22	174.9	136. 7	82	222. 2	173.6
43	33.9	26.5	03	81. 2	63.4	63	128.4	100.4	23	175.7	137.3	83	223.0	174.2
44	34.7	27.1	04	82.0	64.0	64	129.2	101.0	24	176.5	137.9	84	223.8	174.8
45	35. 5	27.7	05	82.7	64.6	65	130.0	101.6	25	177.3	138. 5	85	224.6	175.5
46	36. 2	28.3	06	83. 5	65. 3	66	130.8	102.2	26	178.1	139.1	86	225.4	176.1
47 48	37. 0 37. 8	$ \begin{array}{c c} 28.9 \\ 29.6 \end{array} $	07	84. 3 85. 1	65. 9 66. 5	67	131. 6 132. 4	102. 8 103. 4	27 28	178. 9 179. 7	139. 8 140. 4	87	226. 2 226. 9	176. 7
48	38.6	$\frac{29.6}{30.2}$	08 09	85. 1 85. 9	67 1	68 69	132. 4 133. 2	103.4	28 29	180.5	140.4	88 89	226. 9 227. 7	$177.3 \\ 177.9$
50	39.4	30. 8	10	86. 7	67. 1 67. 7	70	134. 0	104. 7	30	181. 2	141.6	90	228.5	178.5
51	40. 2	31.4	111	87.5	68.3	171	134. 7	105.3	231	$\frac{182.0}{182.0}$	142. 2	291	229.3	$\frac{179.0}{179.2}$
52	41.0	32.0	12	88.3	69.0	$7\hat{2}$	135.5	105. 9	32	182.8	142.8	92	230.1	179.8
53	41.8	32.6	13	89.0	69.6	73	136. 3	106.5	33	183.6	143.4	93	230.9	180.4
54	42.6	33. 2	14	89.8	70.2	. 74	137.1	107.1	34	184.4	144.1	94	231.7	181.0
55	43. 3	33.9	15	90.6	70.8	75	137. 9	107.7	35	185. 2	144.7	95	232.5	181.6
56	44.1	34.5	16	91.4	71.4	76	138.7	108.4	36	186.0	145.3	96	233. 3	182. 2
57 58	44. 9 45. 7	$\begin{vmatrix} 35.1 \\ 35.7 \end{vmatrix}$	17 18	$92.2 \\ 93.0$	$ \begin{array}{c c} 72.0 \\ 72.6 \end{array} $	77	139. 5 140. 3	109. 0	37	186.8	145. 9 146. 5	97 98	234. 0 234. 8	182.9
59	46.5	36.3	19	93. 8	73.3	78 79	140. 3	109.6 110.2	38 39	187. 5 188. 3	140. 5	99	235.6	183. 5 184. 1
60	47.3	36.9	20	94. 6	73.9	80	141. 1	110. 2	40	189.1	147. 8	300	236. 4	184. 7
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
			·'		599	/199	0 9290	30801				·		

52° (128°, 232°, 308°).

TABLE 2.

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Difference of Latitude and Departure for 38° (142°, 218°, 322°).

						·	Dopare		00 (.	, 210	, 522	,.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	237. 2	185. 3	361	284.5	222.3	421	331.8	259. 2	481	379.0	296. 2	541	426.3	333.1
02	238.0	185. 9	62	285.3	222.9	22	332. 5	259.8	82	379.8	296.8	42	427.1	333.7
03	238.8	186.6	63	286.0	223.5	23	333.3	260.4	83	380.6	297.4	43	427.9	334.3
04	239.6	187.2	64	286.8	224. 1	24	334.1	261.0	84	381.4	298.0	44	428.7	335.0
05	240.3	187.8	65	287.6	224.7	25	334.9	261.7	85	382.2	298.6	45	429.5	335.6
06 07	$241.1 \\ 241.9$	188.4 189.0	66 67	288. 4 289. 2	225. 3 226. 0	$\frac{26}{27}$	335. 7 336. 5	262. 3 262. 9	86 87	383. 0 383. 8	299. 2 299. 8	$\begin{array}{c c} 46 \\ 47 \end{array}$	430.3 431.0	336. 2 336. 8
08	242.7	189.6	68	290.0	226.6	28	337.3	263. 5	88	384.5	300.4	48	431.8	337.4
09	243.5	190. 2	69	290.8	227. 2	29	338.1	264. 1	89	385.3	301.1	49	432.6	338.0
10	244.3	190.9	70	291.6	227.8	30	338.8	264.7	90	386.1	301.7	50	433.4	338.6
311	245.1	191.5	371	292.4	228.4	431	339.6	265.4	491	386.9	302.3	551	434.2	339.3
12	245.9	192.1	72	293.1	229.0	32	340.4	266.0	92	387.7	302.9	52	435.0	339.9
13	246.6	192.7	73	293. 9	229.6	33	341.2	266.6	93	388.5	303.5	53	435.8	340.5
14	247.4	193.3	74	294.7	230.3	34	342.0	267. 2	94	389.3	304.2	54	436.6	341.1
15 16	$248.2 \\ 249.0$	193. 9 194. 6	75 76	295. 5 296. 3	230. 9 231. 5	35 36	342. 8 343. 6	267.8	95 96	390. 1 390. 9	304. 8 305. 4	55 56	437.4	341.7
17	249.8	195. 2	77	297.1	232.1	37	344. 4	268. 4 269. 1	97	391.6	306.0	57	438. 1 438. 9	342. 3 343. 0
18	250.6	195.8	78	297. 9	232. 7	38	345. 2	269.7	98	392.4	306.6	58	439.7	343.6
19	251.4	196.4	79	298.7	233.3	39	345.9	270.3	. 99	393. 2	307.2	5 9	440.5	344.2
20	252. 2	197.0	80	299.4	234.0	40	346.7	270.9	500	394.0	307.8	60	441.3	344.8
321	253.0	197.6	381	300.2	234.6	441	347.5	271.5	501	394.8	308.4	561	442.1	345.4
22	253. 7	198. 2	82	301.0	235. 2	42	348.3	272. 1 272. 7	02	395.6	309. 1	62	442. 9	346.0
23	254. 5 255. 3	198.9	83	301. 8 302. 6	235.8	43	349.1	272.7	03	396.4	309.7	63	443.7	346.6
24 25	256. 1	199.5 200.1	84 85	303. 4	236. 4 237. 0	44 45	349. 9 350. 7	$\begin{vmatrix} 273.4 \\ 274.0 \end{vmatrix}$	04 05	397. 2 397. 9	310.3 310.9	64 65	444. 4 445. 2	$347.2 \\ 347.8$
26	256. 9	200.7	86	304. 2	237. 7	46	351.5	274.6	06	398.7	311.6	66	446.0	348.5
27	257.7	201.3	87	305.0	238.3	47	352. 2	275. 2	07	399.5	312. 2	67	446. 8	349.1
28	258.5	201.9	88	305.7.	238.9	48	353.0	275.8	08	400.3	312.8	68	447.6	349.7
29	259.3	202.6	89	306.5	239.5	49	353.8	276.4	09	401.1	313.4	69	448.4	350.3
30	260.0	203.2	90	307.3	240.1	50	354.6	277.1	10	401.9	314.0	70	449.2	350.9
331	260.8	203.8	391	308.1	240.7	451	355.4	277.7	511	402.7	314.6	571	450.0	351.6
32 33	261. 6 262. 4	204. 4 205. 0	$92 \\ 93$	308.9 309.7	$\begin{vmatrix} 241.3 \\ 242.0 \end{vmatrix}$	52 53	$356.2 \\ 357.0$	278. 3 278. 9	12 13	403.5 404.2	315. 2 315. 8	72 73	450. 7 451. 5	352. 2 352. 8
34	263. 2	205. 6	94	310.5	242.6	54	357.8	279.5	14	405. 0	316. 4	74	452.3	353.4
35	264.0	206. 3	95	311.3	243. 2	55	358.5	280.1	15	405.8	317.1	75	453. 1	354.0
36	264.8	206.9	96	312. 1	243.8	56	359.3	280.7	16	406.6	317.7	76	453.9	354.6
437	265. 6	207.5	97	312.8	244.4	57	360.1	281.4	17	407.4	318.3	77	454.7	355.2
38	266. 3	208. 1	98	313.6	245.0	58	360.9	282.0	18	408.2	318.9	78	455.5	355.8
39 40	$267.1 \\ 267.9$	$\begin{vmatrix} 208.7 \\ 209.3 \end{vmatrix}$	99 400	314. 4	$\begin{vmatrix} 245.7 \\ 246.3 \end{vmatrix}$	59 60	361.7 362.5	282. 6 283. 2	19 20	409.0	319.5	79	456.3	356.4
341	268.7	$\frac{209.3}{209.9}$	401	$\frac{316.2}{316.0}$	246. 9	461	363.3	283. 8		409.8	$\frac{320.2}{320.8}$	80	457.1	$\frac{357.1}{257.7}$
42	269.5	210.6	02	316.8	247.5	62	364.1	284. 4	$\frac{521}{22}$	410.6 411.3	321.4	581 82	457. 8 458. 6	$357.7 \\ 358.3$
43	270.3	211. 2	03	317.6	248.1	63	364.9	285. 1	23	412.1	322. 0	83	459.4	358.9
44	271.1	211.8	04	318.4	248.7	64	365.6	285.7	24	412.9	322.6	84	46 0. 2	359.5
45	271.9	212.4	05	319.1	249.3	65	366. 4	286.3	25	413.7	323. 2	85	461.0	360.2
46	272.7	213.0	06	319.9	250.0	66	367. 2	286.9	26	414.5	323.8	86	461.8	360.8
47 48	273.4 274.2	$\begin{vmatrix} 213.6 \\ 214.3 \end{vmatrix}$	07 08	$320.7 \\ 321.5$	$\begin{vmatrix} 250.6 \\ 251.2 \end{vmatrix}$	67 68	368. 0 368. 8	287.5	27	415.3	324.5	87	462.6	361.4
49	275. 0	214. 9	09	$321.3 \\ 322.3$	251. 2	69	369.6	288. 1 288. 7	$\frac{28}{29}$	416. 1 416. 9	$325.1 \\ 325.7$	88 89	463. 3 464. 1	$362.0 \\ 362.6$
50	275.8	215.5	10	323. 1	252. 4	70	370.4	289.3	30	417.6	326. 3	90	464. 9	363. 2
351	276.6	216.1	411	323. 9	253.0	471	371.2	290.0	531	418.4	326. 9	591	465.7	363.8
52	277.4	216.7		324.7	253.7	72	371.9	290.6	32	419.2	327.5	92	466.5	364.4
53	278.2	217.3	13	325.5	254.3	73	372.7	291.2	33	420.0	328.2	93	467.3	365. 1
54	279.0	218.0	14	326. 2	254.9	74	373.5	291.8	34	420.8	328.8	94	468.1	365.7
55 56	279. 7 280. 5	$\begin{vmatrix} 218.6 \\ 219.2 \end{vmatrix}$	15 16	327. 0 327. 8	255. 5 256. 1	75 76	374.3	292.4	35	421.6	329.4	95	468.9	366.3
57	281.3	219. 2	17	328.6	256. 7	76 77	375. 1 375. 9	293. 1 293. 7	36 37	422.4	330. 0 330. 6	96 97	469. 7 470. 5	$366.9 \\ 367.5$
58	282.1	220. 4	18	329.4	257.4	78	376.7	294. 3	38	424.0	331. 2	98	470.3	368.1
. 59	282.9	221.0	19	330. 2	258. 0	79	377.5	294. 9	39	424.7	331.8	99	472.0	368.7
60	283.7	221.6	20	331.0	258.6		378.2	295.5	40	425.5	332.5	600	472.8	369.4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep:	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						590 (1	280 230	00 2000	1					

52° (128°, 232°, 308°).

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TABLE 2.

Difference of Latitude and Departure for 39° (141°, 219°, 321°).

		1)ifferer	nce of L	atitud	and	Departu	re tor 3	390 (1	41°, 219	°, 321°).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.6	61	47. 4	38.4	121	94.0	76. 1	181	140.7	113. 9	241	187. 3	151.7
$2 \mid$	1.6	1.3	62	48.2	39.0	22	94.8	76.8	82	141.4	114.5	42	188.1	152.3
3	2.3	1.9	63	49.0	39.6	23	95.6	77.4	83	142. 2	115.2	43	188.8	152.9
4 5	$\frac{3.1}{3.9}$	$2.5 \\ 3.1$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{49.7}{50.5}$	40. 3 40. 9	$\begin{array}{c c} 24 \\ 25 \end{array}$	96.4 97.1	78. 0 78. 7	84 85	143. 0 143. 8	115.8 116.4	44 45	189.6 190.4	$153.6 \\ 154.2$
6	4.7	3.8	66	51.3	41.5	$\frac{26}{26}$	97. 9	79. 3	86	144.5	117. 1	46	191.2	154. 8
7	5.4	4.4	67	52. 1	42.2	27	98.7	79.9	87	145.3	117.7	47	$191.2 \\ 192.0$	155.4
8	6. 2	5.0	68	52.8	42.8	28	99.5	80.6	88	146.1	118.3	48	192.7	156.1
9 10	7. 0 7. 8	5.7 6.3	69 70	53. 6 54. 4	43. 4 44. 1	$\frac{29}{30}$	100.3 101.0	81. 2 81. 8	89 90	146. 9 147. 7	118.9 119.6	49 50	193. 5 194. 3	156. 7 157. 3
11	$\frac{7.5}{8.5}$	$\frac{6.9}{6.9}$	$\frac{70}{71}$	55.2	44.7	131	$\frac{101.0}{101.8}$	$\frac{-81.3}{82.4}$	$\frac{30}{191}$	148. 4	$\frac{110.0}{120.2}$	251	195. 1	158.0
$\hat{1}\hat{2}$	9.3	7.6	72	56.0	45.3	32	102.6	83.1	92	149.2	120.8	52	195.8	158. 6 159. 2
13	10.1	8.2	73	56. 7	45 9	33	103.4	83. 7	93	150.0	121.5	53	196.6	159. 2
14	10.9	8.8	74	57. 5 58. 3	46. 6 47. 2 47. 8	34	104.1	84.3	94	150.8	$122.1 \\ 122.7$	54	197.4	159.8 160.5
15 16	$11.7 \\ 12.4$	9.4 10.1	75 76	58. 3 59. 1	47.2	35 36	104. 9 105. 7	85. 0 85. 6	95 96	151.5 152.3	123. 3	55 56	198. 2 198. 9	161.1
17	13. 2	10.7	77	59.8	48.5	37	106.5	86. 2	97	153.1	124.0	57	199.7	161.7
18	14.0	11.3	78	60.6	49.1	38	107.2	86.8	98	153.9	124.6	58	200.5	161. 7 162. 4
19	14.8	12.0	79	61.4	49.7	39	108.0	87.5	99	154.7	125. 2	59	201.3	163.0
20	$\frac{15.5}{16.9}$	12.6	80	$\frac{62.2}{32.0}$	$\frac{50.3}{51.0}$	40	108.8	88. 1	200	155.4	125.9	60	202.1	163.6
$\begin{array}{c} 21 \\ 22 \end{array}$	16. 3 17. 1	13. 2 13. 8	81 82	62. 9 63. 7	51.6	$\begin{array}{c} 141 \\ 42 \end{array}$	109.6 110.4	88. 7 89. 4	$\frac{201}{02}$	156. 2 157. 0	$126.5 \\ 127.1$	$\frac{261}{62}$	202.8 203.6	164. 3 164. 9
23	17. 9	14.5	83	64.5	52. 2	43	111.1	90.0	03	157.8	127.8	63	204. 4	165.5
24	18.7	15.1	84	65. 3	52.9	44	111.9	90.6	04	157. 8 158. 5	128.4	64	205.2	166.1
25	19.4	15. 7	85	66. 1	53. 5	45	112.7	91.3	05	159.3	129.0	65	205. 9	166.8
26 27	$20.2 \\ 21.0$	16. 4 17. 0	86 87	66. 8 67. 6	54. 1 54. 8	46 47	113. 5 114. 2	$91.9 \\ 92.5$	06 07	160. 1 160. 9	129.6 130.3	66 67	206. 7 207. 5	167. 4 168. 0
28	$\frac{21.0}{21.8}$	17.6	88	68. 4	55.4	48	115.0	93.1	08	161.6	130. 9		208.3	168.7
29	22.5	18.3	89	69. 2	56.0	49	115.8	93.8	09	162. 4	131.5	69	209.1	169. 3
30	23.3	18.9	90	69. 9	56.6	50	116.6	94.4	10	163. 2	132.2	_70_	209.8	169.9
31	24. 1	19.5	91	70. 7	57.3	151	117.3	95.0	211	164.0	132.8	271	210.6	170.5
32 33	$24.9 \\ 25.6$	$\begin{vmatrix} 20.1 \\ 20.8 \end{vmatrix}$	92 93	$71.5 \\ 72.3$	57. 9 58. 5	$\frac{52}{53}$	118. 1 118. 9	95. 7 96. 3	$\frac{12}{13}$	164. 8 165. 5	133. 4 134. 0	72 73	211. 4 212. 2	171. 2 171. 8
34	26. 4	21.4	94	73. 1	59. 2	54	119.7	96.9	14	166. 3	134.7	74	212.9	172. 4 173. 1
35	27.2	22.0	95	73.8	59.8	55	120.5	97.5	15	167.1	135.3	75	213.7	173.1
36	28.0	22.7	96	74.6	60.4	56	$121.2 \\ 122.0$	98.2	16	167.9	135. 9 136. 6	76 77	214.5	173. 7 174. 3
37 38	$28.8 \\ 29.5$	23. 3 23. 9	97 98	75.4 76.2	$61.0 \\ 61.7$	57 58	122. 0	98. 8 99. 4	17 18	168. 6 169. 4	137. 2	78	215.3 216.0	175.0
39	30.3	24.5	99	76.9	62.3	59	123.6	100.1	19	170. 2	137.8	79	216.8	175.6
40	31.1	25. 2	100	$_{-77.7}$	62.9	_60_	124.3	100.7	20	171.0	138.5	80	217.6	176. 2
41	31.9	25.8	101	78.5	63. 6	161	125.1	101.3	221	171.7	139.1	281	218.4	176.8
42 43	32. 6 33. 4	26. 4 27. 1	$02 \\ 03$	79. 3 80. 0	64. 2 64. 8	$\frac{62}{63}$	125. 9 126. 7	101.9	$\frac{22}{23}$	$172.5 \\ 173.3$	139. 7 140. 3	82 83	219. 2 219. 9	177. 5 178. 1
44	34. 2	27.7	04	80.8	65.4	64	127.5	101. 9 102. 6 103. 2	24	174.1	141.0	84	220.7	178.7
45	35.0	28. 3 28. 9	05	81.6	66.1	65	128. 2	103. 8 104. 5	25	174.9	$141.6 \\ 142.2$	85	$221.5 \\ 222.3$	179.4 180.0
46	35.7	28.9	06	82.4	66.7	66	129.0	104.5	26	175.6	142. 2	86	222.3	180.0
47 48	$36.5 \\ 37.3$	29. 6 30. 2	07 08	83. 2	67.3 68.0	67 68	129.8 130.6	105. 1 105. 7	$\begin{array}{c} 27 \\ 28 \end{array}$	176.4 177.2	142. 9 143. 5	87 88	$223.0 \\ 223.8$	180.6
49	38.1	30. 8	09	83. 9 84. 7	68.6	69	131.3	106.4	29	178.0	144.1	89	224.6	181. 2 181. 9
50	38.9	31.5	10	85.5	69.2	70	132.1	107.0	30	178.7	144.7	90	225. 4	182.5
51	39.6	32.1	111	86.3	.69.9	171	132.9	107.6	231	179.5	145. 4	291	226.1	183.1
52 52	40.4	32.7	12	87.0	70.5	72	133.7	108.2	32	180.3	146.0	92	226. 9	183.8
53 54	$41.2 \\ 42.0$	33. 4 34. 0	13 14	87.8	71.1	73 74	134. 4 135. 2	108.9 109.5	33 34	181.1	146. 6 147. 3	93 94	227.7 228.5	184. 4
55	42.7	34.6	15	89.4	72.4	75	136.0	110.1	35	182.6	147.9	95	229.3	185.6
56	43.5	35.2	16	90.1	73.0	76	136.8	110.8	36	183.4	148.5	96	230.0	186.3
57	44.3	35.9	17	90.9	73.6	77	137. 6 138. 3	111.4	37	184.2	149.1	97	230.8	186.9
58 59	45.1 45.9	$\begin{vmatrix} 36.5 \\ .37.1 \end{vmatrix}$	18 19	91. 7	74.3 74.9	78 79	139. 1	112.0 112.6	38 39	185. 0 185. 7	149.8 150.4	98 99	231.6 232.4	187. 5
60	46.6	37.8	20	93. 3	75.5	80	139.9	113. 3	40	186.5	151.0		233. 1	188.8
_		-	70											
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						51° (129°, 23	1°, 309	٥).					

51° (129°, 231°, 309°).

TABLE 2.

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Difference of Latitude and Departure for 39° (141°, 219°, 321°).

			Juere	ence of	Lautuo	e and	Depart	ure for	99. (141', 21	, 321).		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	233. 9	189. 4	361	280.6	227. 1	421	327. 2	264. 9	481	373.8	302.6	541	420.4	340. 4
02	234.7	190.0	62	281.3	227.8	22	328.0	265.5	82	374.6	303.3	42	421.2	341.0
03	235.5	190.6	63	282.1	228.4	23	328.7	266. 2		375.4	303.9		422.0	341.7
04	236.3	191.3	64	282.9	229.0	24	329.5	266.8	84	376.1	304.5	44	422.7	342.3
05	237.0	191.9	65	283.7	229.7	25	330.3	267.4		376. 9	305. 2	45	423.5	342.9
06 07	237. 8 238. 6	192. 5 193. 2	66 67	284. 4 285. 2	230. 3 230. 9		331. 1 331. 9	$\begin{vmatrix} 268.0\\ 268.7 \end{vmatrix}$	86 87	377. 7 378. 5	305.8		424.3 425.1	343.6
08	239.4	193. 8	68	286.0	231.5		332.6	269. 3		379.3	306. 4		425. 1	344. 2 344. 8
09	240. 1	194.4	69	286. 8	232. 2	29	333.4	269. 9		380.0	307.7		426.6	345.5
10	240. 9	195.0	70	287.6	232. 8	30	334. 2	270.6		.380. 8	308.3		427.4	346. 1
311	241.7	195.7	371	288.3	233. 4		335.0	271.2	491	381.6	308.9		428. 2	346.7
12	242.5	196.3	72	289.1	234.1	32	335.7	271.8	92	382. 4	309.6	52	429.0	347.4
13	243.3	196.9	73	289. 9	234.7	33	336.5	272.5	93	383. 1	310.2	53	429.7	348.0
14	244.0	197.6	74	290.7	235.3		337.3	273. 1	94	383. 9	310.8	54	430.5	348.6
15	244.8	198. 2	75	291.4	236.0	35	338.1	273. 7	95	384.7	311.5		431.3	349.2
16	245.6	198.8	76	292.2	236.6	36	338.8	274. 3		385.5	312.1		432.1	349.9
17 18	246. 4 247. 1	$\begin{vmatrix} 199.5 \\ 200.1 \end{vmatrix}$	77 78	293. 0 293. 8	237. 2 237. 8	37 38	339. 6 340. 4	$\begin{vmatrix} 275.0\\ 275.6 \end{vmatrix}$	97 98	386.2	312. 7 313. 3	57 58	432.8	350.5
19	247. 9	200. 7	79	294.5	238.5		341.2	276. 2	99	387. 0 387. 8	314. 0		433. 6 434. 4	351.1
20	248.7	201.3	80	295.3	239.1	40	342.0	276. 9	500	388.6	314.7	60	435. 2	351.7 352.4
321	249.5	202.0	381	296.1	$\frac{239.7}{239.7}$	441	342.7	2775	501	389.4	315.3		435. 9	353.0
22	250.3	202.6	82	296.9	240.4	42	343.5	278. 1	02	390.1	315. 9	62	436. 7	353.6
23	251.0	203. 2	83	297.7	241.0	43	344.3	278.7	03	390.9	316.5		437.5	354.3
24	251.8	203.9	84	298.4	241.6		345.1	279.4	04	391.7	317. 1	64	438.3	354.9
25	252.6	204.5	85	299.2	242. 2	45	345.8	280.0	05	392.5	317.8	65	439.1	355.5
26	253.4	205.1	86	300.0	242.9	46	346.6	280.6		393.2	318.4		439.8	356. 2
27 28	$254.1 \\ 254.9$	205. 7 206. 4	87 88	300.8	$\begin{vmatrix} 243.5 \\ 244.1 \end{vmatrix}$	47	347.4	281.3	07	394.0	319.0	67	440.6	356.8
29	255.7	207. 0	89	302.3	244. 8	48 49	348. 2 349. 0	$\begin{vmatrix} 281.9 \\ 282.5 \end{vmatrix}$	08 09	394. 8 395. 6	$\begin{vmatrix} 319.6 \\ 320.3 \end{vmatrix}$	68 69	441. 4 442. 2	357.4
30	256.5	207.6	90	303. 1	245. 4	50	349.7	283. 2	10	396.3	320. 9	70	443.0	358. 1 358. 7
331	257.2	208.3	391	303.9	246.0	451	350.5	283.8	511	397.1	321.6	571	443.7	359.3
32	258.0	208.9	92	304.7	246.7	52	351.3	284.4	12	397. 9	322. 2	72	444.5	359.9
33	258.8	209.5	93	305.4	247.3	53	352.1	285.0	13	398.7	322.8	73	445.3	360.6
34	259.6	210. 2	94	306.2	247. 9	54	352.8	285. 7	14	399.4	323.4	74	446.1	361.2
35	260.4	210.8	95	307.0	248.5	55	353.6	286.3	15	400.2	324.1	75	446.9	361.8
36 37	261. 1 261. 9	211.4 212.0	96 97	307. 8 308. 5	249.2 249.8	56 57	354. 4 355. 2	286. 9 287. 6	16	401.0	324.7	76	447.6	362.4
38	262.7	212.7	98	309.3	250. 4	58	355. 9	288. 2	17 18	401.8 402.5	325. 3 325. 9	77 78	448. 4 449. 2	363. 1
39	263.5	213. 3	99	310.1	251.1	59	356. 7	288.8	19	403.3	326.6	79	450.0	363. 7 364. 3
40	264.2	213.9	400	310.9	251.7	60	357.5	289. 4	20	404.1	327. 2	80	450.7	365. 0
341	265.0	214.6	401	311.6	252.3	461	358.3	290.1	521	404.9	327.8	581	451.5	365.6
42	265.8	215. 2	02	312.4	252.9	62	359.1	290.7	22	405.7	328.5	82	452.3	366. 2
43	266.6	215.8	03	313. 2	253. 6	63	359.8	291.3	23	406. 4	329.1	83	453.1	366. 9
44 45	267. 3 268. 1	216.4	04	314.0	254. 2	64	360.6	292.0	24	407.2	329.7	84	453.9	367.5
46	268. 9	217.1 217.7	05 06	$314.8 \\ 315.5$	254.8 255.5	65 66	361.4	292.6	25	408.0	330.4	85	454.6	368.1
47	269. 7	218.3	07	316.3	256. 1	67	$362.2 \\ 362.9$	293. 2 293. 8	$\frac{26}{27}$	408. 8 409. 5	$331.0 \\ 331.6$	86 87	455.4	368.8
48	270.5	219.0	08	317. 1	256.7	68	363. 7	293. 8	28	410.3	332.3	88	456. 2 457. 0	369. 4 370. 0
49	271.2	219.6	09	317.9	257.3	69	364.5	295. 1	29	411.1	332. 9	89	457.8	370.6
50	272.0	220. 2	10	318.6	258.0	70	365. 3	295. 7	. 30	411.9	333. 5	90	458.5	371.3
351	272.8	220.8	411	319.4	258.6	471	366.0	296.4	531	412.6	334.1	591	459.3	371.9
52	273.6	221.5	12	320.2	259.2	72	366.8	297.0	32	413.4	334.8	92	460.1	372.5
53	274.3	222.1 222.7	13	321.0	259.9	73	367.6	297.6	33	414.2	335.4	93	460.9	373.2
54 55	$275.1 \\ 275.9$	223. 4	14 15	321. 8 322. 5	260.5 261.1	74	368.4	298.3	34	415.0	336: 1	94	461.6	373.8
56	276.7	224. 0	16	323. 3	261. 1	75 76	369. 2 369. 9	298. 9 299. 5	35 36	415. 8 416. 5	336.7	95	462.4	374.4
57	277.5	224.6	17	324.1	262. 4	77	370.7	300.1	37	417.3	337. 3 337. 9	96 97	463. 2 464. 0	375.1 375.7
58	278.2	225.3	18	324.9	263.0	78	371.5	300.8	38	418.1	338.5	98	464.8	376.3
59	279.0	225. 9	19	325.6	263. 6	79	372.3	301.4	39	418.9	339.1	99	465.5	376.9
60	279.8	226.5	20	326. 4	264.3	80	373.0	302.0	40	419.6	339.8	600	466.3	377.6
Dist	Dec	Tai	Di-i	D.										
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
					5	1° (12	29°, 231°	°, 309°).					

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TABLE 2.

Difference of Latitude and Departure for 40° (140°, 220°, 320°).

				1100 01 1	- Aurua	Cand	Departi	110101	10 (1	10 , 220	, 020	<i>)</i> ·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.6	61	46. 7	39. 2	121	92. 7	77.8	181	138.7	116.3	241	184.6	154.9
$\overline{2}$	1.5	1.3	62	47.5	39. 9	22	93.5	78.4	82	139.4	117.0	42	185. 4	155.6
3	2.3	1.9	63	48.3	40.5	23	94. 2	79.1	83	140. 2	117.6	43	186. 1	156. 2
4	3.1	2.6	64	49.0	41.1	24	95.0	79.7	84	141.0	118.3	44	186.9	156.8
5	3.8	3.2	65	49.8	$41.8 \\ 42.4$	25	95.8	80.3	85	141. 7 142. 5	118.9	45	187. 7 188. 4	157. 5 158. 1
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	4. 6 5. 4	3.9 4.5	66 67	50.6 51.3	43.1	26 27	96. 5 97. 3	81. 0 81. 6	86 87	143.3	119.6 120.2	46 47	189. 2	158. 8
8	6.1	5. 1	68	52. 1	43. 7	28	98.1	82.3	88	144.0	120. 8	48	190. 0	159.4
9	6.9	5.8	69	52. 9	44.4	29	98.8	82.9	89	144.8	121.5	49	190.7	160.1
10	7.7	6.4	70	53.6	45.0	30	99.6	83.6	90	145.5	122.1	50	191.5	160.7
11	8.4	7. 1	71	54.4	45.6	131	100.4	84. 2	191	146.3	122.8	251	192.3	161.3
12	9.2	7.7	$\frac{72}{2}$	55. 2	46.3	32	101.1	84.8	92	147.1	123.4	52	193.0	162.0
13	10.0	8.4	73	55. 9	46.9	33	101.9	85.5	93	147. 8 148. 6	$\begin{vmatrix} 124.1 \\ 124.7 \end{vmatrix}$	53	193.8	162. 6 163. 3
14 15	10.7 11.5	9. 0 9. 6	74 75	56. 7 57. 5	$47.6 \\ 48.2$	34 35	102. 6 103. 4	86. 1 86. 8	94 95	148.0	125.3	54 55	194. 6 195. 3	163. 9
16	12.3	10.3	76	58. 2	48.9	36	104.2	87.4	96	150.1	126.0	56	196.1	164.6
17	13.0	10.9	77	59. 0	49.5	37	104.9	88. 1	97	150. 9	126.6	57	196.9	$164.6 \\ 165.2$
18	13.8	11.6	78	59.8	50.1	38	105.7	88.7	98	151.7	127.3	58	197.6	165.8
19	14.6	12.2	79	60.5	50.8	39	106.5	89.3	99	152.4	127.9	59	198.4	166.5
20	15.3	12.9	80	61.3	51.4	40	107.2	90.0	200	153. 2	128.6	60	199.2	167. 1
21	16. 1	13. 5	81	62.0	52. 1	141	108.0	90.6	201	154.0	129. 2	261	199. 9	167.8
22	16.9	14.1	82	62.8	52.7	42	108.8	91.3	02	154.7	129.8	62	200. 7	168.4
23 24	17.6	14. 8 15. 4	83 84	63.6 64.3	53.4	43 44	109. 5 110. 3	91. 9 92. 6	$03 \\ 04$	155. 5 156. 3	130. 5 131. 1	$\frac{63}{64}$	201. 5 202. 2	169. 1 169. 7
25	18. 4 19. 2	16.1	85	65. 1	54.6	45	111.1	93. 2	05	157.0	131. 8	65	203. 0	170.3
26	19. 9	16. 7	86	65. 9	55.3	46	111.8	93.8	06	157.8	132. 4	66	203. 8	171.0
27	20.7	17.4	87	66. 6	55.9	47	112.6	94.5	07	158.6	133. 1	67	204.5	171.6
28	21.4	18.0	88	67.4	56.6	48	113.4	95. 1	08	159.3	133.7	68	205.3	172.3
29	22. 2	18.6	89	68.2	57. 2	49	114.1	95.8	09	160.1	134.3	69	206.1	172.9
30	23.0	19.3	90	68.9	57.9	50	114.9	96.4	10	160.9	135.0	70	206.8	173.6
31	23. 7	19.9	91	69. 7	58.5	151	115.7	97.1	211	161.6	135.6	271	207.6	174. 2
32 33	24.5	$20.6 \\ 21.2$	92 93	$70.5 \\ 71.2$	59. 1 59. 8	52 53	116. 4 117. 2	97. 7 98. 3	12 13	162. 4 163. 2	136. 3 136. 9	72 73	208. 4 209. 1	174.8 175.5
34	25. 3 26. 0	$21.2 \\ 21.9$	94	72.0	60.4	54	118.0	99.0	14	163. 9	137. 6	74	209. 9	176.1
35	26.8	22.5	95	72.8	61.1	55	118.7	99.6	15	164.7	138. 2	75	210.7	176.8
36	27.6	23. 1	96	73.5	61.7	56	119.5	100.3	16	165.5	138.8	76	211.4	177.4
37	28. 3	23.8	97	74.3	62.4	57	120.3	100.9	17	166. 2	139.5	77	212. 2	178.1
38	29. 1	24.4	98	75.1	63.0	58	121.0	101.6	18	167.0	140.1	78	213. 0 213. 7	178.7
39 40	29.9	$\begin{vmatrix} 25.1 \\ 25.7 \end{vmatrix}$	99 100	75. 8 76. 6	63. 6 64. 3	59 60	$121.8 \\ 122.6$	102. 2 102. 8	$\frac{19}{20}$	167. 8 168. 5	140. 8 141. 4	79 80	214. 5	179.3 180.0
41	$\frac{30.6}{31.4}$	$\frac{26.7}{26.4}$	101	77.4	64. 9	161	123. 3	103.5	$\frac{20}{221}$	169.3	$\frac{141.4}{142.1}$	$\frac{30}{281}$	215. 3	180.6
42	32. 2	27. 0	02	78. 1	65.6	62	124.1	104.1	22	170.1	142.7	82	216.0	181.3
43	32.9	27.6	03	78. 9	66. 2	63	124. 9	104.8	23	170.8	143. 3	83	216.8	181.9
44	33.7	28.3	04	79. 7	66.8	64	125.6	105. 4	24	171.6	144.0	84	217.6	182.6
45	34.5	28.9	05	80. 4	67.5	65	126.4	106.1	25	172.4	144.6	85	218.3	183. 2
46	35.2	29.6	06	81.2	68.1	66	127.2	106.7	26	173.1	145.3	86	219.1	183.8
47	36.0	30. 2	07	82.0	68. 8 69. 4	67	127.9 128.7	107.3 108.0	$\begin{array}{c} 27 \\ 28 \end{array}$	173. 9 174. 7	145. 9 146. 6	87 88	219. 9 220. 6	184. 5 185. 1
48 49	36. 8 37. 5	30. 9 31. 5	08	82. 7 83. 5	70.1	68 69	129.5	108. 6	$\frac{28}{29}$	175.4	140. 0	89	221. 4	185. 8
50	38.3	32.1	10	84.3	70. 7	70	130. 2	109.3	30	176. 2	147. 8	90	222. 2	186.4
51	$\frac{39.1}{39.1}$	32.8	111	85.0	71. 3	171	131.0	109. 9	231	177.0	148.5	291	222.9	187.1
52	39.8	33.4	12	85.8	72.0	$7\overline{2}$	131.8	110.6	32	177.7	149.1		223.7	187.7
53	40.6	34.1	13	86.6	72.6	73	132.5	111.2	33	178.5	149.8	93	224.5	188.3
54	41.4	34. 7	14	87.3	73. 3	74	133. 3	111.8	34	179.3	150. 4	94	225. 2	189.0
55	42.1	35.4	15	88.1	73.9	75 76	134.1	112.5	35 36	180. 0 180. 8	151. 1 151. 7	95 96	226. 0 226. 7	189. 6 190. 3
56 57	42. 9 43. 7	36. 0 36. 6	16 17	88. 9 89. 6	74. 6 75. 2	76 77	134. 8 135. 6	113. 1 113. 8	36 37	181.6	152.3	97	227. 5	190. 5
58	43. 7	37.3	18	90.4	75.8	78	136. 4	114.4	38	182. 3	153.0	98	228.3	191.6
59	45. 2	37.9	19	91. 2	76.5	79	137. 1	115.1	39	183. 1	153.6	99	229.0	192. 2
60	46.0	38.6	20	91.9	77.1	80	137.9	115.7	40	183. 9	154. 3	300	229.8	192.8
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						50° (1	30°, 230	°, 310°).					

50° (130°, 230°, 310°).

TABLE 2.

[Page 611

Difference of Latitude and Departure for 40° (140°, 220°, 320°).

Dist				1711161	ence or	Lautuc	- and			10 (.	140 , 22	, 520	٠.		
02 231.3 194.1 62 277.3 232.7 22 333.3 271.8 82 369.2 309.8 42 415.2 348.4 616.3 232.1 194.8 63 278.1 233.3 23 324.0 271.9 83 370.0 310.5 43 416.0 349.0 64 222.9 195.4 64 278.8 234.0 24 394.8 272.6 84 370.8 311.1 1 44 416.7 349.7 65 234.4 196.7 66 280.4 235.3 26 326.3 273.8 86 372.3 312.4 46 418.3 351.0 67 225.2 197.3 67 66 280.4 235.3 26 326.3 273.8 86 372.3 312.4 46 418.3 351.0 63 235.9 188.0 68 281.9 236.6 28 327.9 275.1 188 373.8 313.6 48 419.8 352.2 60 236.7 188.6 66 282.7 237.2 29 328.6 275.8 89 373.8 313.6 48 419.8 352.2 60 236.7 189.3 70 283.4 237.8 30 329.4 276.4 90 375.4 314.9 50 421.3 353.5 11 282.2 199.9 371. 284.2 283.5 431 330.9 277.7 191.3 376.1 315.6 551 4221.3 354.2 283.1 282.2 283.6 283.2 277.1 491.3 376.1 315.6 551 4221.3 354.2 283.1 282.2 283.6 283.2 277.1 491.3 376.1 315.6 551 4221.3 354.2 283.1 282.2 283.6 283.2 277.1 491.3 376.1 315.6 551 4221.3 354.2 283.1 282.2 283.6 283.2 277.1 491.3 376.1 315.6 551 4221.3 354.2 283.1 282.2 283.6 283.2 277.1 491.3 376.1 315.6 551 4221.3 354.2 283.1 282.2 283.1 320.2 25.7 52.8 34.0 353.5 542.6 35.5 142.2 23.2 25.7 52.8 34.0 353.5 542.6 35.5 142.2 35.3 54.5 241.7 36 353.5 278.6 95 380.7 313.5 551 4221.3 354.2 283.1 320.2 25.7 52.8 340.4 343.3 32.5 278.6 95 380.7 313.5 55 424.5 363.8 192.4 4 305.1 79.2 283.2 432.2	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
02 231.3 194.1 62 277.3 232.7 22 323.3 271.8 82 369.2 309.8 42 415.2 348.4 616.3 232.1 144.6 349.0 349.0 618.2 232.9 195.4 64 278.8 234.0 24 324.8 272.6 84 370.8 311.1 1 44 16.7 349.7 616.2 236.1 160.1 65 270.6 236.6 180.1 65 270.6 236.6 180.1 65 270.6 236.2 25 25.6 278.2 85 371.5 311.1 44 16.7 349.7 360.0 232.4 1 180.7 66 280.4 235.3 26 326.3 273.8 86 372.3 312.4 46 418.3 351.0 61.0 235.7 187.3 67 285.2 187.3 67 285.2 11.2 235.9 27 327.1 274.5 87 373.1 231.0 47 149.0 351.6 69 236.7 188.6 66 281.9 236.6 25 327.9 275.1 88 373.8 313.6 48 198.8 352.2 10 237.5 188.6 66 281.9 236.6 28 327.9 275.1 88 373.8 313.6 48 198.8 352.2 10 237.5 189.3 70 283.4 237.8 30 39.4 276.4 90 375.4 314.9 20.6 421.3 335.5 11 238.2 189.9 371. 234.2 234.2 235.5 431 330.9 277.7 92 376.9 316.2 52 422.9 354.8 311 238.2 20.1 2 73 285.0 239.1 32 330.9 277.7 92 376.9 316.2 52 422.9 354.8 31.3 239.8 201.2 73 285.7 2331. 32 330.9 277.7 92 376.9 316.2 52 422.9 354.8 31.3 239.8 201.2 73 285.7 2331. 33 331.7 278.3 93 377.7 316.9 53 424.4 356.1 12 243.2 203.1 76 288.0 241.7 36 333.5 278.0 94 378.4 317.5 54 424.4 356.1 12 243.2 203.1 76 288.0 241.7 36 333.4 280.2 280.3 96 380.0 318.8 5 67 425.9 357.4 19 244.4 205.1 79 200.3 243.6 6 39 380.3 380.7 318.5 57 4285.7 337.0 243.6 40 380.2 329.2 247.4 205.7 50.0 201.1 243.8 30.4 376.1 310.2 324.2 325.7 324.1 324.2 325.7 324.1 324.2 325.2 325.7 324.0 325.2 325.2 325.7 324.0 325.2	301	230.6		361	276.5	232. 1		322.5	270.6	481	368.5	309. 2	541	414.4	347.7
03 232.1 194.8 63 278.1 233.3 23 324.0 271.9 83 370.0 310.5 43 416.0 349.0 04 232.9 195.4 64 527.8 234.6 24 324.8 272.6 84 370.8 311.1 44 416.7 349.7 05 233.6 196.1 65 679.6 234.6 25 235.6 273.2 85 371.5 311.7 44 416.7 349.7 06 234.4 186.7 66 280.4 235.3 26 326.3 273.8 86 371.5 311.7 44 416.7 5350.3 07 235.2 197.3 67 281.1 235.9 27 327.1 274.5 .87 373.1 313.0 47 419.0 351.6 08 235.9 188.0 68 281.9 236.6 28 327.9 275.1 88 378.8 313.6 47 419.0 351.6 09 236.7 188.6 66 282.7 237.2 29 328.6 275.8 89 374.6 314.3 49 420.6 352.9 10 237.5 199.3 70 284.2 238.5 431 330.2 277.1 491 376.1 315.6 551 422.1 354.2 12 239.0 200.6 72 285.7 239.7 33 330.2 277.7 79 376.9 316.2 52 422.2 354.8 13 239.8 201.2 73 285.7 239.7 33 331.7 278.3 93 377.7 316.9 53 423.6 355.5 14 240.5 201.8 74 286.5 240.4 34 332.5 279.0 94 378.4 317.5 54 424.4 363.1 15 241.3 202.5 75 287.3 241.0 35 333.5 279.0 94 380.0 318.8 56 425.9 357.4 17 242.8 203.8 77 288.8 242.3 37 333.3 282.2 99 382.3 320.8 56 425.2 356.8 18 243.6 204.4 78 289.6 243.5 33 335.3 282.2 99 382.3 320.8 57 426.7 358.0 19 244.4 205.1 79 290.3 243.6 33 335.5 282.1 501 429.8 360.0 388.8 36.6 425.9 360.0 388.5	02	231. 3	194.1	62	277.3	232.7	22	323.3	271.3		369. 2				
OB 233.6 196.1 65 279.6 234.6 25 325.6 273.2 85 371.5 311.7 46 417.5 353.1 OF 235.2 197.3 67 281.1 235.9 27 327.1 274.5 87 373.1 313.0 47 491.0 351.0 OF 235.2 197.3 67 281.1 235.9 27 327.1 274.5 87 373.1 313.0 47 491.0 351.0 OF 236.7 198.6 69 282.7 237.2 29 238.6 275.8 89 374.6 314.3 49 420.6 352.2 OF 236.7 198.6 69 282.7 237.2 29 328.6 275.8 89 374.6 314.3 49 420.6 352.2 OF 236.7 198.0 60 282.7 237.2 29 328.6 275.8 89 374.6 314.3 49 420.6 352.2 OF 236.7 239.1 284.2 238.5 431.1 330.2 277.1 491 376.1 315.6 551 422.1 353.5 OF 239.8 201.2 73 285.7 239.1 32 330.9 277.7 275.1 491 376.1 315.6 551 422.1 354.2 OF 241.3 202.5 75 287.3 241.0 35 333.2 279.6 94 378.4 317.5 54 426.5 355.1 OF 242.1 203.1 76 288.0 241.7 36 334.0 280.3 94 378.4 311.5 55 425.9 357.4 OF 244.4 205.1 79 290.3 243.6 333.3 282.2 99 382.3 320.1 58 426.5 290.4 OF 244.4 205.1 79 290.3 243.6 335.3 282.2 99 382.3 320.1 58 426.5 326.0 OF 244.4 205.1 79 290.3 243.6 335.3 282.2 99 382.3 320.1 58 426.2 326.3 OF 245.7 245.0 245.0 245.0 245.0 245.0 OF 245.0 245.0 245.0 245.0 245.0 245.0 OF 245.0 245.0 245.0 245.0 245.0 OF 245.0 245.0 245.0 245.0 245.0 OF 245										83			43	416.0	
06									272.6		370.8				
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10			198.6		282 7	237 2	29		275.8						352.2
191 238.2 199.9 371 224.2 228.5 431 330.2 277.1 491 376.1 315.6 551 422.1 354.2 283.8 31 229.8 320.8 320.2 73 225.7 239.7 33 331.7 278.3 33 377.7 316.0 53 423.6 535.5 429.9 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.2 354.8 424.8 425.1 13 224.8 233.8 77 288.8 242.3 37 334.8 280.9 97 380.7 319.5 57 426.7 358.0 349.8 426.2 359.8 426.2 326.					283. 4										353.5
12 239. 0 200. 6													1		
132 239. 8 201. 2 73 255. 7 239. 7 33 331. 7 278. 3 93 377. 7 316. 9 53 423. 6 555. 5 14 240. 5 201. 8 74 286. 5 240. 4 34 332. 5 279. 0 94 378. 4 317. 5 54 424. 4 356. 1 15 241. 3 202. 5 75 287. 3 241. 0 35 333. 2 279. 6 95 379. 2 318. 2 55 425. 2 356. 8 16 242. 1 203. 1 76 288. 0 241. 7 36 343. 0 280. 3 66 380. 6 380. 6 380. 6 380. 6 380. 6 18 243. 6 204. 4 78 289. 6 243. 0 38 335. 5 281. 6 88 381. 5 320. 1 58 427. 5 358. 0 19 244. 4 205. 1 79 290. 3 243. 6 39 336. 3 282. 2 99 382. 3 320. 8 59 428. 2 359. 3 20 245. 1 205. 7 80 291. 1 244. 3 40 337. 1 282. 8 500. 383. 0 321. 4 60 429. 0 380. 0 321 245. 9 266. 3 381 291. 9 244. 9 441 337. 8 283. 5 500. 383. 3 321. 4 60 429. 0 380. 0 322 246. 7 207. 6 82 292. 6 245. 6 42 338. 6 284. 1 02 384. 6 322. 7 62 430. 5 361. 2 23 247. 4 207. 6 83 203. 4 248. 2 43 339. 4 284. 5 43 430. 1 285. 4 44 44 44 44 44 44 44	12	239.0	200.6	72	285.0	239.1								422. 9	
14 240.5 201.8 74 286.5 240.4 34 332.5 279.0 94 378.4 317.5 54 424.4 356.1 15 241.1 203.1 76 288.8 241.0 35 333.2 279.6 95 379.2 318.2 545.2 356.8 16 242.1 203.1 76 288.8 241.0 36 334.0 280.3 96 380.0 318.8 56 425.9 357.4 17 242.8 203.8 77 288.8 242.3 37 334.8 280.9 97 380.7 319.5 54 425.1 57 426.7 358.0 18 243.6 204.4 78 289.6 243.0 38 335.5 251.6 98 381.5 320.1 58 427.5 358.7 19 244.4 205.1 79 290.3 243.6 39 336.3 282.2 99 383.3 321.4 60 429.0 360.0 245.1 205.7 80 291.1 244.3 40 337.1 282.8 500 383.0 321.4 60 429.0 360.0 321 245.9 206.3 381 291.9 244.9 411 337.8 283.5 501 383.8 322.0 561 429.8 360.0 232 247.4 207.6 83 293.2 246.8 44 340.1 285.4 40 386.1 322.0 561 439.5 361.2 24 248.2 208.3 84 294.2 246.8 44 340.1 285.4 40 386.1 324.0 62 430.5 361.2 24 248.2 208.3 84 294.2 244.8 84 340.1 285.4 40 386.1 324.0 64 432.1 362.5 25 249.0 208.9 85 294.9 247.5 45 340.9 286.0 05 386.8 324.6 65 432.8 363.8 27 250.5 210.2 87 296.5 248.8 47 342.4 287.3 07 388.4 325.9 67 434.3 364.5 29 352.0 211.5 89 298.0 250.1 49 344.0 288.6 06 389.9 327.1 69 435.6 30 252.8 212.1 90 298.8 250.7 50 344.7 289.3 10 390.7 378.8 70 436.6 368.4 31 254.3 213.4 92 300.3 250.5 53 346.3 290.5 13 391.5 328.4 571 437.4 367.0 32 254.3 213.4 92 300.3 250.5 55 346.3 290.5 13 391.5 328.4 571 437.4 367.0 32 254.3 213.4 92 300.3 250.5 55 346.3 290.5 13 391.5 328.4 571 437.4 367.0 32 254.3 213.4 92 300.3 250.5 55 346.3 290.5 13 391.5 328.4 571 437.4 367.0 32	13					239.7			278.3		377.7	316.9		423.6	355.5
16 242.1 203.1 76 288.8 241.7 36 334.0 280.3 9 6 380.0 318.8 56 425.9 95.8 0 18 243.6 204.4 78 289.6 243.0 33 335.5 281.6 98 381.5 320.1 58 427.5 358.7 30 241.1 205.7 80 291.1 244.3 40 337.1 282.8 500 383.0 321.0 58 427.5 386.0 321 245.9 206.3 381 291.9 244.9 4411 337.8 283.5 501 383.8 322.0 561 429.0 380.0 232 246.7 207.0 88 294.2 244.9 245.6 42 333.6 284.1 02 384.6 322.7 560.1 429.8 380.6 284.1 02 384.6 322.0 561 429.8 380.6 284.1 02 384.1 322.0 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>332.5</td><td></td><td></td><td>378.4</td><td></td><td></td><td></td><td>356.1</td></th<>								332.5			378.4				356.1
17 242. 8 203. 8 77 288. 8 242. 3 37 334. 8 280. 9 97 380. 7 319. 5 57 426. 7 558. 0 7 19 244. 4 205. 1 79 290. 3 243. 6 39 335. 5 281. 6 98 381. 5 290. 1 60 429. 0 360. 0 360. 0 381. 205. 7 80 291. 1 244. 3 40 337. 1 282. 8 500 383. 0 321. 4 60 429. 0 360. 0 360. 0 322 246. 7 207. 0 82 292. 6 245. 6 42 338. 6 284. 1 02 384. 6 322. 7 62 430. 5 360. 6 232. 247. 5 426. 2 437. 5 438. 4 248. 2 208. 3 84 294. 2 246. 8 44 340. 1 285. 4 04 386. 1 324. 0 64 432. 1 362. 5 249. 7 209. 6 86 295. 7 248. 1 46 341. 7 286. 7 06 387. 6 325. 2 66 433. 6 332. 3 323. 4 269. 2 249. 7 209. 6 86 295. 7 248. 1 46 341. 7 286. 7 06 387. 6 325. 2 66 433. 6 363. 8 282. 2 249. 7 209. 6 86 295. 7 248. 1 46 341. 7 286. 7 06 387. 6 325. 2 66 433. 6 363. 8 282. 2 249. 7 209. 6 86 295. 7 249. 4 48 343. 2 288. 0 08 389. 2 396. 5 68 435. 1 364. 5 289. 2 252. 3 211. 5 89 298. 0 250. 1 49 344. 0 288. 6 09 389. 9 397. 1 69 436. 6 336. 6 325. 2 327. 6 328. 3 338. 3 328. 3 338.						241.0		333.2						425. 2	
18 243.6 204.4 78 289.6 243.0 38 335.5 281.6 98 881.5 320.1 58 427.5 358.7 20 245.1 205.7 80 291.1 244.3 40 337.1 282.8 500 383.0 321.4 60 429.0 360.0 321 245.9 206.3 381 291.9 244.9 441 337.8 283.5 501 383.8 322.0 561 429.8 360.6 23 247.4 207.6 83 294.2 246.8 44 340.1 285.4 40 384.6 322.7 244.94.8 33.9 424.8 33.3 385.3 323.3 63 431.3 361.9 242.4 245.2 283.8 248.8 30 385.4 33.23.3 63 343.3 363.6 325.7 243.3 383.8 328.5 30 383.8 33.25.1 383.8 383.2 328.5 664.43.2 343.3 <		242.1				241.7									357.4
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34	32	254.3				252.0		346.3		12	392.2	329.1	72	438.2	367.7
35	33	255.1				252.6		347.0			393.0			438.9	368.3
36 257. 4 216. 0 96 303. 4 254. 6 56 349. 3 293. 1 16 395. 3 331. 6 76 441. 2 370. 9 37 258. 2 216. 6 97 304. 1 255. 2 57 350. 1 293. 8 17 396. 1 332. 3 77 442. 0 370. 9 38 258. 9 217. 3 98 304. 9 255. 8 58 350. 8 294. 4 18 396. 8 332. 9 78 442. 8 371. 5 30 259. 7 217. 9 99 305. 7 256. 5 59 351. 6 295. 0 19 397. 6 333. 6 79 443. 5 372. 2 40 260. 5 218. 6 400 306. 4 257. 1 60 352. 4 295. 7 20 398. 3 334. 2 80 444. 3 372. 2 42 262. 0 219. 8 0 308. 0 258. 4 62 353. 9 297. 0 23 390.		256.6				253. 3			291.8		393.8			439.7	369.0
37	36					254 6					305 3			440.0	370.9
38 258. 9 217. 3 98 304. 9 255. 8 58 350. 8 294. 4 18 396. 8 332. 9 78 442. 8 371. 5 39 259. 7 217. 9 99 305. 7 256. 5 59 351. 6 295. 0 19 397. 6 333. 6 79 443. 5 372. 2 341 261. 2 219. 2 401 307. 2 257. 8 461 353. 1 296. 3 521 399. 1 334. 9 581 445. 1 373. 5 42 262. 0 219. 8 02 308. 0 258. 4 461 353. 1 296. 3 521 399. 9 335. 5 82 445. 1 373. 5 42 262. 0 219. 8 02 308. 7 259. 1 63 354. 7 297. 6 23 400. 6 336. 1 83 446. 6 374. 1 43 264. 3 221. 1 04 309. 5 259. 7 64 355. 4 298. 3 24 <	37					255. 2		350. 1						442 0	370.2
39 259.7 217.9 99 305.7 256.5 59 351.6 295.0 19 397.6 333.6 79 443.5 372.2 341 260.5 219.2 401 307.2 257.8 461 353.1 296.3 521 399.1 334.9 581 444.3 372.8 42 262.0 219.8 02 308.0 258.4 62 353.9 297.0 22 399.9 335.5 82 445.8 374.1 43 262.8 220.5 03 308.7 259.1 63 354.7 297.6 23 400.6 336.1 83 446.6 374.8 44 263.5 221.1 04 309.5 259.7 64 355.4 298.3 24 401.4 336.8 84 447.4 375.4 45 264.3 221.8 05 310.2 260.3 65 356.2 298.9 25 402.2 337.4 85	38	258.9	217.3		304.9	255.8		350.8						442.8	371.5
341 261. 2 219. 2 401 307. 2 257. 8 461 353. 1 296. 3 521 399. 1 334. 9 581 445. 1 373. 5 42 262. 0 219. 8 02 308. 0 258. 4 62 353. 9 297. 0 22 399. 9 335. 5 82 445. 8 374. 1 43 262. 8 220. 5 03 308. 7 259. 1 63 354. 7 297. 6 23 400. 6 336. 1 83 446. 6 374. 8 44 263. 5 221. 1 04 309. 5 259. 7 64 355. 4 298. 3 24 401. 4 336. 8 84 447. 4 375. 4 45 264. 3 221. 8 05 310. 2 260. 3 65 356. 2 298. 9 25 402. 9 338. 1 86 448. 9 376. 7 47 265. 8 223. 1 07 311. 8 261. 6 67 357. 7 300. 2 27 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>351.6</td><td></td><td></td><td></td><td></td><td></td><td>443.5</td><td>372.2</td></td<>								351.6						443.5	372.2
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46 265. 1 222. 4 06 311. 0 261. 0 66 357. 0 299. 5 26 402. 9 338. 1 86 448. 9 376. 7 47 265. 8 223. 1 07 311. 8 261. 6 67 357. 7 300. 2 27 403. 7 338. 7 87 449. 7 377. 3 48 266. 6 223. 7 08 312. 5 262. 3 68 358. 5 300. 8 28 404. 5 339. 4 88 450. 4 378. 0 49 267. 4 224. 3 09 313. 3 262. 9 69 359. 3 301. 5 29 405. 2 340. 0 89 451. 2 378. 6 50 268. 1 225. 0 10 314. 1 263. 6 70 360. 0 302. 1 30 406. 0 340. 6 90 452. 0 379. 9 52 269. 6 226. 3 12 315. 6 264. 8 72 361. 6 303. 4 32 407.		264. 3	221.8			260. 3								448 1	
47 265. 8 223. 1 07 311. 8 261. 6 67 357. 7 300. 2 27 403. 7 338. 7 87 449. 7 377. 3 377. 3 48 266. 6 223. 7 08 312. 5 262. 3 68 358. 5 300. 8 28 404. 5 339. 4 88 450. 4 378. 0 49 267. 4 224. 3 09 313. 3 262. 9 69 359. 3 301. 5 29 405. 2 340. 0 89 451. 2 378. 6 50 268. 1 225. 0 10 314. 1 263. 6 70 360. 0 302. 1 30 406. 0 340. 6 90 452. 0 379. 2 351 268. 9 226. 6 411 314. 8 264. 2 471 360. 8 302. 8 531 406. 0 340. 6 90 452. 7 379. 9 52 269. 6 226. 3 12 315. 6 264. 8 72 <t>361. 6 303. 4 32</t>		265. 1	222.4											448. 9	
48 266. 6 223. 7 08 312. 5 262. 3 68 358. 5 300. 8 28 404. 5 339. 4 88 450. 4 378. 0 49 267. 4 224. 3 09 313. 3 262. 9 69 359. 3 301. 5 29 405. 2 340. 0 89 451. 2 378. 6 50 268. 1 225. 0 10 314. 1 263. 6 70 360. 0 302. 1 30 406. 0 340. 6 90 452. 0 379. 2 351 268. 9 225. 6 411 314. 8 264. 2 471 360. 8 302. 8 531 406. 8 341. 3 591 452. 7 379. 9 52 269. 6 226. 3 12 315. 6 264. 8 72 361. 6 303. 4 32 407. 5 341. 9 92 453. 5 380. 5 53 270. 4 226. 9 13 316. 4 265. 5 73 362. 3 304. 0 33 <td< td=""><td>47</td><td>265.8</td><td>223.1</td><td>07</td><td>311.8</td><td>261.6</td><td></td><td>357.7</td><td></td><td>27</td><td></td><td></td><td></td><td>449.7</td><td></td></td<>	47	265.8	223.1	07	311.8	261.6		357.7		27				449.7	
49 267.4 224.3 09 313.3 262.9 69 359.3 301.5 29 405.2 340.0 89 451.2 378.6 50 268.1 225.0 10 314.1 263.6 70 360.0 302.1 30 406.0 340.6 90 452.0 379.2 351 268.9 225.6 411 314.8 264.2 471 360.8 302.8 531 406.8 341.3 591 452.7 379.9 52 269.6 226.3 12 315.6 264.8 72 361.6 303.4 32 407.5 341.9 92 453.5 380.5 53 270.4 226.9 13 316.4 265.5 73 362.3 304.0 33 408.3 342.6 93 453.5 380.5 54 271.2 227.6 14 317.1 266.1 74 363.1 304.7 34 409.1 343.2 94		266. 6	223.7		312.5	262.3		358. 5	300.8	28	404.5	339. 4			378.0
351 268. 9 225. 6 411 314. 8 264. 2 471 360. 8 302. 8 531 406. 8 341. 3 591 452. 7 379. 9 52 269. 6 226. 3 12 315. 6 264. 8 72 361. 6 303. 4 32 407. 5 341. 9 92 453. 5 380. 5 53 270. 4 226. 9 13 316. 4 265. 5 73 362. 3 304. 0 33 408. 3 342. 6 93 454. 3 381. 2 54 271. 2 227. 6 14 317. 1 266. 1 74 363. 1 304. 7 34 409. 1 343. 2 94 455. 0 381. 8 55 271. 9 228. 2 15 317. 9 266. 8 75 363. 9 305. 3 35 409. 8 343. 9 95 455. 8 382. 4 56 272. 7 228. 8 16 318. 7 267. 4 76 364. 6 306. 6 37 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>															
52 269.6 226.3 12 315.6 264.8 72 361.6 303.4 32 407.5 341.9 92 453.5 380.5 53 270.4 226.9 13 316.4 265.5 73 362.3 304.0 33 408.3 342.6 93 454.3 381.2 54 271.2 227.6 14 317.1 266.1 74 363.1 304.7 34 409.1 343.2 94 455.0 381.8 55 271.9 228.2 15 317.9 266.8 75 363.9 305.3 35 409.8 343.9 95 455.8 382.4 56 272.7 228.8 16 318.7 267.4 76 364.6 306.0 36 410.6 344.5 96 456.6 383.1 57 273.5 229.5 17 319.4 268.1 77 365.4 306.6 37 411.4 345.2 97															
53 270. 4 226. 9 13 316. 4 265. 5 73 362. 3 304. 0 33 408. 3 342. 6 93 454. 3 381. 2 54 271. 2 227. 6 14 317. 1 266. 1 74 363. 1 304. 7 34 409. 1 343. 2 94 455. 0 381. 8 55 271. 9 228. 2 15 317. 9 266. 8 75 363. 9 305. 3 35 409. 8 343. 9 95 455. 8 382. 4 56 272. 7 228. 8 16 318. 7 267. 4 76 364. 6 306. 0 36 410. 6 344. 5 96 456. 6 383. 1 57 273. 5 229. 5 17 319. 4 268. 1 77 365. 4 306. 6 37 411. 4 345. 2 97 457. 3 383. 7 58 274. 2 230. 1 18 320. 2 268. 7 78 366. 2 307. 3 38 412.															
54 271. 2 227. 6 14 317. 1 266. 1 74 363. 1 304. 7 34 409. 1 343. 2 94 455. 0 381. 8 55 271. 9 228. 2 15 317. 9 266. 8 75 363. 9 305. 3 35 409. 8 343. 9 95 455. 8 382. 4 56 272. 7 228. 8 16 318. 7 267. 4 76 364. 6 306. 0 36 410. 6 344. 5 96 456. 6 383. 1 57 273. 5 229. 5 17 319. 4 268. 1 77 365. 4 306. 6 37 411. 4 345. 2 97 457. 3 383. 7 58 274. 2 230. 1 18 320. 2 268. 7 78 366. 2 307. 3 38 412. 1 345. 8 98 458. 1 384. 4 59 275. 0 230. 8 19 321. 0 269. 3 79 366. 9 307. 9 39 412.	1								304 0			342 6			
55 271.9 228.2 15 317.9 266.8 75 363.9 305.3 35 409.8 343.9 95 455.8 382.4 56 272.7 228.8 16 318.7 267.4 76 364.6 306.0 36 410.6 344.5 96 456.6 383.1 57 273.5 229.5 17 319.4 268.1 77 365.4 306.6 37 411.4 345.2 97 457.3 383.7 58 274.2 230.1 18 320.2 268.7 78 366.2 307.3 38 412.1 345.8 98 458.1 384.4 59 275.0 230.8 19 321.0 269.3 79 366.9 307.9 39 412.9 346.4 99 458.9 385.0 60 275.8 231.4 20 321.7 270.0 80 367.7 308.5 40 413.7 347.1 600		271. 2	227.6		317. 1	266. 1		363. 1				343. 2		455 0	381 8
56 272. 7 228. 8 16 318. 7 267. 4 76 364. 6 306. 0 36 410. 6 344. 5 96 456. 6 383. 1 57 273. 5 229. 5 17 319. 4 268. 1 77 365. 4 306. 6 37 411. 4 345. 2 97 457. 3 383. 7 58 274. 2 230. 1 18 320. 2 268. 7 78 366. 2 307. 3 38 412. 1 345. 8 98 458. 1 384. 4 59 275. 0 230. 8 19 321. 0 269. 3 79 366. 9 307. 9 39 412. 9 346. 4 99 458. 9 385. 0 60 275. 8 231. 4 20 321. 7 270. 0 80 367. 7 308. 5 40 413. 7 347. 1 600 459. 6 385. 7 Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep	55	271.9	228.2		317.9	266.8		363.9	305.3			343. 9			
58 274. 2 230. 1 18 320. 2 268. 7 78 366. 2 307. 3 38 412. 1 345. 8 98 458. 1 384. 4 59 275. 0 230. 8 19 321. 0 269. 3 79 366. 9 307. 9 39 412. 9 346. 4 99 458. 9 385. 0 60 275. 8 231. 4 20 321. 7 270. 0 80 367. 7 308. 5 40 413. 7 347. 1 600 459. 6 385. 7 Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat. Dist. Dep. Lat.		272.7						364.6	306.0	36	410.6	344.5	96	456.6	383. 1
59 275. 0 230. 8 60 275. 8 231. 4 20 321. 7 270. 0 380 367. 7 308. 5 40 413. 7 347. 1 600 459. 6 385. 7 Dist. Dep. Lat. Dep. Lat. Dep. Lat. Dist. Dep. Lat. Dep. Lat. <t< td=""><td></td><td>273.5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>457.3</td><td></td></t<>		273.5												457.3	
60 275.8 231.4 20 321.7 270.0 80 367.7 308.5 40 413.7 347.1 600 459.6 385.7 Dist. Dep. Lat.															
Dist. Dep. Lat.					321.7										
2-17 Zun Zun Zun Zun Zun								507.1		10	110. 1	011.1	000	200.0	000.7
	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
											•			P-	

50° (130°, 230°, 310°).

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 ${\bf TABLE~2}.$ Difference of Latitude and Departure for 41° (139°, 221°, 319°).

										,	, 020	<i>,</i> .		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.8	0.7	61	46.0	40.0	121	91.3	79.4	181	136.6	118.7	241	181.9	158.1
$\frac{1}{2}$	1.5	1.3	62	46.8	40.7	22	92.1	80.0	82	137. 4	119.4	42	182.6	158.8
$\bar{3}$	$\tilde{2}.\tilde{3}$	2.0	63	47.5	41.3	23	92.8	80.7	83	138.1	120.1	43	183.4	159.4
4	3.0	2.6	64	48.3	42.0	24	93.6	81.4	84	138.9	120.7	44	184.1	160.1
5	3.8	3.3	65	49.1	42.6	25	94.3	82.0	85	139.6	121.4	45	184.9	160.7
6	4.5	3.9	66	49.8	43.3	26	95.1	82.7	86	140.4	122.0	46	185.7	161.4
7	5.3	4.6	67	50.6	44.0	27	95.8	83.3	87	141.1	122.7	47	186.4	162.0
8	6.0	5.2	68	51.3	44.6	28	96.6	84.0	88	141.9	123.3	48	187.2	162.7
9	6.8	5.9	69	52.1	45.3	29	97.4	84.6	89	142.6	124.0	49	187.9	163. 4
_10	7.5	6.6	70	52.8	45.9	_ 30_	98.1	85.3	90	143.4	124.7	50	188.7	164.0
11	8.3	7.2	71	53.6	46.6	131	98.9	85.9	191	144.1	125.3	251	189. 4	164.7
12	9.1	7.9	72	54.3	47.2	32	99.6	86.6	92	144.9	126.0	52	190.2	165.3
13	9.8	8.5	73	55.1	47.9	33	100.4	87.3	93	145.7	126.6	53	190.9	166.0
14	10.6	9.2	74	55.8	48.5	34	101.1	87.9	94	146. 4	127.3	54	191. 7 192. 5	166.6
15	11.3	$9.8 \\ 10.5$	75	56.6	49. 2 49. 9	35	101.9	88. 6 89. 2	95 96	$147.2 \\ 147.9$	127.9	55 56	193. 2	167. 3 168. 0
16 17	$12.1 \\ 12.8$	$10.3 \\ 11.2$	76 77	57.4 58.1	50.5	36 37	102. 6 103. 4	89.9	97	147. 3	$\begin{vmatrix} 128.6 \\ 129.2 \end{vmatrix}$	57	194. 0	168. 6
18	13.6	11.8	78	58. 9	51. 2	38	104.1	90.5	98	149.4	129. 9	58	194.7	169.3
19	14.3	12.5	79	59.6	51.8	39	104. 1	91. 2	99	150. 2	130. 6	59	195.5	169.9
20	15. 1	13.1	80	60.4	52.5	40	105. 7	91.8	200	150. 9	131. 2	60	196. 2	170.6
21	15.8	13.8	81	$\frac{61.1}{61.1}$	53. 1	141	106.4	92.5	201	151.7	131.9	261	197.0	171. 2
$\frac{21}{22}$	16.6	14.4	82	61. 9	53.8	42	107. 2	93. 2	02	152.5	132. 5	62	197. 7	171. 9
23	17.4	15. 1	83	62.6	54.5	43	107. 9	93.8	03	153. 2	133. 2	63	198.5	172.5
24	18.1	15.7	84	63. 4	55.1	44	108.7	94.5	04	154.0	133.8	64	199. 2	173. 2
25	18. 9	16.4	85	64.2	55.8	45	109.4	95.1	05	154.7	134.5	65	200.0	173.9
26	19.6	17.1	86	64.9	56.4	46	110.2	95.8	06	155.5	135.1	66	200.8	174.5
27	20.4	17.7	87	65.7	57.1	47	110.9	96.4	07	156.2	135.8	67	201.5	175.2
28	21.1	18.4	88	66.4	57.7	48	111.7	97.1	08	157.0	136.5	68	202.3	175.8
29	21.9	19.0	89	67.2	58.4	49	112.5	97.8	09	157.7	137. 1	69	203.0	176.5
30	22.6	19.7	90	67.9	59.0	50	113. 2	98.4	10	158.5	137.8	70	203.8	177.1
31	23.4	20.3	91	68.7	59.7	151	114.0	99.1	211	159. 2	138. 4	271	204.5	177.8
32	24. 2	21.0	92	69.4	60.4	52	114.7	99. 7	12	160.0	139.1	$\frac{72}{2}$	205. 3	178.4
33	24.9	21.6	93	70.2	61.0	53	115.5	100.4	13	160.8	139.7	73	206.0	179.1
34	25. 7	22.3	94	70.9	61.7	54	116.2	101.0	14	161.5	140.4	74	206.8	179.8
35	26.4	23.0	95	71.7	62. 3 63. 0	55	117.0 117.7	101.7	15	162.3 163.0	141. 1 141. 7	75 76	207. 5 208. 3	180. 4 181. 1
36 37	27. 2 27. 9	$\begin{bmatrix} 23.6 \\ 24.3 \end{bmatrix}$	96 97	$72.5 \\ 73.2$	63.6	56 57	118.5	102. 3 103. 0	16 17	163.8	142. 4	77	209. 1	181.7
38	$\frac{27.9}{28.7}$	24. 9	98	74. 0	64.3	58	119.2	103. 7	18	164.5	143.0	78	209.8	182.4
39	29. 4	25.6	99	74.7	64. 9	59	120.0	104.3	19	165. 3	143. 7	79	210.6	183.0
40	30.2	26. 2	100	75.5	65.6	60	120.8	105.0	20	166.0	144. 3	80	211.3	183.7
41	30.9	26.9	101	76. 2	66.3	161	121.5	105.6	221	166.8	145.0	281	212.1	184.4
42	31. 7	27.6	02	77. 0	66. 9	62	122.3	106.3	22	167.5	145.6	82	212.8	185.0
43	32.5	28. 2	03	77.7	67.6	63	123.0	106.9	-23	168.3	146.3	83	213.6	185. 7
44	33. 2	28. 9	04	78.5	68. 2	64	123.8	107.6	24	169.1	147.0	84	214.3	186.3
45	34.0	29.5	05	79.2	68.9	65	124.5	108.2	25	169.8	147.6	85	215. 1	187.0
46	34.7	30.2	06	80.0	69.5	66	125.3	108.9	26	170.6	148.3	86	215.8	187.6
47	35.5	30.8	07	80.8	70.2	67	126.0	109.6	27	171.3	148.9	87	216.6	188.3
48	36.2	31.5	08	81.5	70.9	68	126.8	110.2	28	172.1	149.6	88	217.4	188.9
49	37.0	32.1	09	82.3	71.5	69	127.5	110.9	29	172.8	150.2	89	218.1	189.6
50	37.7	32.8	10	83.0	72.2	70	128.3	111.5	30	173.6	150. 9	90	218.9	190.3
51	38.5	33.5	111	83. 8	72.8	171	129.1	112.2	231	174.3	151.5	291	219.6	190. 9
52	39.2	34.1	12	84.5	73.5	$\frac{72}{2}$	129.8	112.8		175.1	152. 2		220.4	191.6
53	40.0	34.8	13	85.3	74.1	. 73	130.6	113.5	33	175.8	152.9	93	221.1	192.2
54	40.8	35.4	14	86.0	74.8	74	131.3	114.2	34	176.6	153.5	94	221.9 222.6	192.9
55	$41.5 \\ 42.3$	36.1	15	86.8	75. 4 76. 1	75 76	132. 1 132. 8	114.8 115.5	35 36	177.4 178.1	154. 2 154. 8	95 96	222.6	193.5 194.2
56 57	42. 3	36. 7 37. 4	16 17	87. 5 88. 3	76. 8	76 77	132. 8	116. 1	37	178.1	155.5	96	224.1	194. 2
58	43. 8	38.1	18	89.1	77.4	78	134.3	116. 1	38	179.6	156. 1	98	224. 1	195.5
59	44.5	38.7	19	89.8	78.1	79	135.1	117.4	39	180. 4	156.8	99	225.7	196. 2
60	45.3	39.4	20	90.6	78.7	80	135.8	118.1	40	181.1	157.5	300	226. 4	196.8
	25.5	55.1												
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	1		1		1					•	1		1 -	1
						49° (1	310, 229	9°. 311°).					

49° (131°, 229°, 311°).

TABLE 2.

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Difference of Latitude and Departure for 41° (139°, 221°, 319°).

			Dinere			- and	Departi	110 101	(1	00 , 221	, 010	<i>)</i> •		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	227. 2	197.5	361	272.5	236. 9	421	317.7	276. 2	481	363.0	315. 6	541	408.3	354.9
02	227.9	198.1	62	273.2	237.5	22	318.5	276.9	82	363.8	316. 2	42	409.0	355.6
03	228.7	198.8	63	274.0	238, 2	23	319. 2	277.5	83	364.5	316.9	43	409.8	356. 2
04	229.4	199.4	64	274.7	$238.8 \\ 239.5$	24	320.0	278. 2	84	365.3	317.5	44	410.6	356.9
05	230. 2	$\begin{vmatrix} 200.1 \\ 200.8 \end{vmatrix}$	65	275.5	239.5	25 26	320. 8 321. 5	$278.8 \\ 279.5$	85	366. 0 366. 8	318. 2 318. 8	45 46	411.3 412.1	$357.5 \\ 358.2$
06 07	230.9 231.7	200. 8	66 67	276. 2 277. 0	240.1 240.8	$\frac{20}{27}$	321.3	280. 1	86 87	367. 5	319.5	47	412. 1	358. 8
08	232.5	202. 1	68	277.7	241. 4	28	323. 0	280.8	88	368. 3	320.1	48	413.6	359.5
09	233. 2	202. 7	69	278.5	242. 1	29	323. 8	281.5	89	369.0	320.8	49	413. 6 414. 3	359. 5 360. 2
10	234.0	203.4	70	279.2	242.7	30	324.5	282.1	90	369.8	321.5	50	415.1	360.8
311	234.7	204.0	$\frac{371}{72}$	280.0	243.4	431	325.3	282.8	491	370.6	322.1	551	415.8	361.5
12	235.5	204. 7	72	280.8	244. 1	32	326.0	283. 4	92	371.3	322.8	52	416. 6 417. 3 418. 1	362. 1 362. 8
13	236. 2	205.4	73	281.5	244.7	33	326.8	$\begin{vmatrix} 284.1 \\ 284.7 \end{vmatrix}$	93 94	$372.1 \\ 372.8$	323. 4 324. 1	53	417.3	362. 8 363. 4
14 15	237.0 237.7	206. 0	74 75	282. 3 283. 0	245. 4 246. 0	34 35	$\begin{vmatrix} 327.5 \\ 328.3 \end{vmatrix}$	285. 4	95	373.6	324.1 324.7	54 55	418. 1	364 1
16	238. 5	207.3	76	283. 8	246. 7	36	329.1	286. 0	96	374.3	325. 4	56	419.6	364. 1 364. 8
17	239. 2	208.0	77	284.5	247. 3	37	329.8	286. 7	97	375.1	326.0	57	420.4	365, 4
18	239. 2 240. 0	208.6	78	285.3	248.0	38	330.6	287.4	98	375.8	326.7	58	421.1	366. 1 366. 7
19	240.8	209.3	79	286.0	248.7	39	331.3	288.0	99	376.6	327.4	59	421.9	366. 7
_20	$\frac{241.5}{}$	209.9	80	286.8	$\frac{249.3}{250.0}$	40	332.1	288.7	500	377.3	328. 0	60	422.6	367.4
321	242.3	210.6	381	287.5	250.0	441	332.8	289.3	501	378.1	328.7	561	423. 4	368.0
22 23	243.0	$\begin{vmatrix} 211.3 \\ 211.9 \end{vmatrix}$	82 83	$288.3 \\ 289.1$	250.6 251.3	42 43	333. 6 334. 3	290. 0 290. 6	$02 \\ 03$	378. 9 379. 6	329.3 330.0	62 63	424. 1 424. 9 425. 7	368. 7 369. 4
24	$243.8 \\ 244.5$	211.9 212.6	84	289. 1	251. 9	44	335.1	291.3	03	380.4	330.6	64	425. 7	370.0
25	245. 3	213. 2	85	290.6	252. 6	$4\overline{5}$	335.8	292.0	05	381.1	331.3	65	426. 4	370.7
26	246.0	213.9	86	291.3	253.2	46	336.6	292.6	06	$381.1 \\ 381.9$	332.0	66	$\frac{426.4}{427.2}$	371.3 372.0
27	246.8	214.5	87	292. 1	253.9	47	337.4	293.3	1 07	382.6	332.6	67	1427.9	372.0
28	247.5	215. 2	88	292.8	254.6	48	338.1	293. 9	08	383.4	333.3	68	428. 7 429. 4	372.6
29 30	248.3 249.1	$ 215.9 \ 216.5 $	89 90	293.6 294.3	255. 2 255. 9	49 50	338. 9 339. 6	294. 6 295. 2	09 10	384. 1 384. 9	333. 9 334. 6	69 70	429.4	373.3 374.0
}	$\frac{249.1}{249.8}$	$\frac{210.3}{217.2}$	391	$\frac{294.3}{295.1}$	$\frac{256.5}{256.5}$	451	340. 4	295. 9	511	385.7	335. 2	571	430 0	374.6
$\begin{array}{c c} 331 \\ 32 \end{array}$	250.6	217.8	92	295. 8	257. 2	52	341.1	296. 5	12	386.4	335. 9	72	431. 7 432. 4 433. 2 434. 0	375.3
33	251.3	218.5	93	296.6	$257.2 \\ 257.8$	53	341.9	297. 2	13	387.2	336.5	73	432.4	375.9
34	251.3 252.1	219.1	94	297.4	258.5	54	342.6	297.9	14	387.9	337. 2	74	433. 2	376.6
35	252.8	219.8	95	298.1	259. 2	55	343. 4	298.5	15	388.7	337. 9	75	434.0	377. 2
36	253.6	220.4	96 97	298. 9 299. 6	259. 8 260. 5	56 57	344.1 344.9	299. 2 299. 8	16 17	389. 4 390. 2	338. 5 339. 2	76 77	434. 7 435. 5	377. 9 378. 5
37 38	254.3 255.1	$\begin{vmatrix} 221.1 \\ 221.8 \end{vmatrix}$	98	300.4	261.1	58	345.7	300.5	18	390. 2	339.8	78	436. 2	379.2
39	255.8	222. 4	99	301.1	261. 8	59	346.4	301.1	19	391.7	340.5	79	437.0	379.8
40	256.6	223.1	400	301.9	262.4	60	347. 2	301.8	20	392.4	341.1	80	437.7	380.5
341	257.4	223.7	401	302.6	263.1	461	347.9	302.5	521	393.2	341.8	581	438.5	381.2
42	258.1	223.7 224.4	02	303.4	263.7	62	348.7	302. 5 303. 1	22	394.0	342.5	82	438. 5 439. 2	381. 2 381. 8
43	258.9	225.0	03	304.2	264.4	63	349.4	303.8	23	394.7	343.1	83	440.0	382.5
44	259.6	$\begin{vmatrix} 225.7 \\ 226.3 \end{vmatrix}$	04 05	304. 9	$\begin{vmatrix} 265.1 \\ 265.7 \end{vmatrix}$	$\frac{64}{65}$	350. 2 350. 9	304. 4 305. 1	$\frac{24}{25}$	395. 5 396. 2	343. 8 344. 4	84 85	440.7 441.5	383. 2 383. 8
45 46	260.4 261.1	220. 3	06	306.4	266. 4	66	351.7	305. 7	$\frac{25}{26}$	396. 2	345.1	86 86	441.3	384.5
47	261. 9	227. 7	07	307. 2	267. 0	67	352.5	306. 4	27	397.7	345. 7	87	443.0	385.1
48	261.9 262.6	228.3	08	307. 9	267.7	68	353. 2	307.0	28	398.5	346.4	88	443. 0 443. 8	385.8
49	263.4	229.0	09	308.7	268.3	69	354.0	307.7	'29	399.2	347.0	89	444.5	386.4
50	264.2	229.6	10	309.4	269.0	70	354.7	308. 4	30	400.0	347.7	90	445.3	387.1
351	264. 9	230.3	411	310. 2	269.6	471	355.5	309.0	531	400.7	348.4	591	446.0	387.7
52	265.7	230.9		310.9	270.3 271.0	72	356. 2	309.7	32	401. 5 402. 2	349.0		446.8	388. 4 389. 1
53 54	266.4 267.2	$\begin{vmatrix} 231.6 \\ 232.3 \end{vmatrix}$	13 14	311. 7 312. 5	271.6	73 74	357. 0 357. 7	310. 3 311. 0	33 34	402. 2	349. 7 350. 3	93 94	447.5 448.3	389. 7
55	267. 9	232. 9	15	313. 2	272.3	75	358.5	311.6	35	403.8	351.0	95	449.1	390.4
56	268.7	233. 6	16	314.0	272.9	76	359. 2	312.3	36	404.5	351.6	96	449.8	391.0
57	269.4	234.2	17	314.7	273.6	77	360.0	312.9	37	405.3	352.3	97	450.6	391.7
58	270. 2	234.9	18	315.5	274.2	78	360.8	313.6	38	406.0	352.9	98	451.3	392.3
59	270.9	235.5	19	316. 2	274.9	79	361.5	314.3	39	406.8	353.6	600	452.1	393.0
60	271.7	236.2	20	317.0	275.6	80	362.3	314.9	40	407.5	354.3	600	452.8	393.6
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
17180.	Dep.	Liat.	171.50	DCP.	130.0.	Dist.	Dep.	Lat.	Disc.	Dep.	Dat.	17160	Dep.	25000
						49° (1	31°, 229	°. 311°).					

49° (131°, 229°, 311°).

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TABLE 2.

Difference of Latitude and Departure for 42° (138°, 222°, 318°).

						- wiid	Departi		(1	.00 , 222	, 510	1.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.7	0.7	61	45. 3	40.8	121	89. 9	81.0	181	134.5	121.1	241	179.1	161.3
2	1.5	1.3	62	46.1	41.5	22	90.7	81.6	82	135.3	121.8	42	179.8	161.9
3	2. 2	2.0	63	46.8	42.2	23	91.4	82.3	83	136.0	122.5	43	180.6	162.6
4	3.0	2.7	64	47.6	42.8	24	92.1	83.0	84	136.7	123.1	44	181.3	163.3
5	3.7	3.3	65	48.3	43.5	25	92.9	83.6		137.5	123.8	45	182.1	163.9
6	4.5	4.0	66	49.0	44.2	26	93.6	84.3	86	138. 2	124.5	46	182.8	164.6
7 8	5. 2 5. 9	4.7	67 68	49.8	44.8	$\frac{27}{28}$	94.4	85.0	87	139.0	$\begin{vmatrix} 125.1 \\ 125.8 \end{vmatrix}$	47	183.6	165.3
9	6.7	6.0	69	51.3	46. 2	$\frac{26}{29}$	95. 1 95. 9	85. 6 86. 3	88 89	139.7 140.5	125.8 126.5	48 49	184.3 185.0	165.9
10	7.4	6.7	70	52.0	46.8	30	96.6	87.0	90	141. 2	120. 3	50	185. 8	166. 6 167. 3
11	8.2	7.4	$\overline{71}$	52.8	47.5	131	97.4	87.7	191	141.9	127. 8	251	186.5	168.0
12	8.9	8.0	$7\overline{2}$	53.5	48.2	32	98.1	88.3	92	142.7	128.5	$\frac{251}{52}$	187.3	168.6
13	9.7	8.7	73	54. 2	48.8	33	98.8	89.0	93	143. 4	129.1	53	188.0	169.3
14	10.4	9.4	74	55.0	49.5	34	99.6	89.7	94	144. 2	129.8	54	188.8	170.0
15	11.1	10.0	75	55. 7	50.2	35	100.3	90.3	95	144. 9	130.5	55	189.5	170.6
16	11.9	10.7	76	56.5	50.9	36	101.1	91.0	96	145.7	131.1		190.2	171.3
17	12.6	11.4	77	57.2	51.5	37	101.8	91.7	97	146.4	131.8	57	191.0	172.0
18	13.4	12.0	78	58.0	52. 2	38	102.6	92.3	98	147. 1	132.5	58	191.7	172.6
19	14.1	12.7	79	58. 7	52.9	39	103.3	93.0	99	147.9	133. 2	59	192.5	173.3
20	14.9	13.4	80	59.5	53.5	40	104.0	93.7	200	148.6	133.8	_60	193. 2	174.0
$\frac{21}{22}$	15.6	14. 1	81	60.2	54. 2	141	104.8	94.3	201	149. 4	134.5	261	194.0	174.6
22 23	16.3 17.1	14. 7 15. 4	82 83	60.9 61.7	54. 9 55. 5	42	105.5	95.0	$\frac{02}{02}$	150.1	135. 2	62	194.7	175.3
24	17. 1	16.1	84	62. 4	56.2	43 44	106. 3 107. 0	95. 7 96. 4	03 04	150. 9 151. 6	135.8	$\frac{63}{64}$	195.4	176.0
25	18.6	16. 7	85	63. 2	56.9	45	107. 8	97.0	05	152.3	136. 5 137. 2	65	196. 2	176. 7 177. 3
26	19.3	17.4	86	63. 9	57.5	46	107. 5	97.7	06	153. 1	137. 8	66	196. 9 197. 7	178.0
$\frac{27}{27}$	20. 1	18. 1	87	64.7	58.2	47	109. 2	98.4	07	153.8	138.5	67	198.4	178.7
28	20.8	18.7	88	65.4	58.9	48	110.0	99.0	08	154.6	139. 2	68	199. 2	179.3
29	21.6	19.4	89	66.1	59.6	49	110. 7	99.7	09	155.3	139.8	69	199.9	180.0
_30	22.3	20.1	90	66. 9	60.2	50	111.5	100.4	10	156.1	140.5	70	200.6	180.7
31	23. 0	20. 7	91	67. 6	60.9	151	112. 2	101.0	211	156.8	141.2	271	201.4	181.3
32	23.8	21.4	92	68. 4	61.6	52	113.0	101.7	12	157. 5	141.9	72	202. 1	182.0
33	24.5	22. 1 22. 8	93 94	69.1	62. 2	53	113.7	102.4	13	158.3	142.5	73	202.9	182.7
34 35	25.3 26.0	23. 4	95	69. 9 70. 6	62. 9 63. 6	$\frac{54}{55}$	114. 4 115. 2	103. 0 103. 7	14	159. 0 159. 8	143. 2	74	203.6	183.3
36	26. 8	24. 1	96	71.3	64. 2	56	115. 2	103. 7	$\begin{array}{c c} 15 \\ 16 \end{array}$	160. 5	143.9 144.5	75 76	204. 4 205. 1	184. 0 184. 7
37	$\frac{27.5}{27.5}$	24.8	97	72. 1	64. 9	57	116.7	105. 1	17	161.3	145. 2	77	205. 9	185.3
38	$\frac{1}{28.2}$	25. 4	98	72.8	65.6	58	117.4	105.7	18	162.0	145. 9	78	206.6	186.0
39	29.0	26.1	99	73.6	66. 2	59	118.2	106.4	19	162.7	146.5	79	207.3	186.7
40	29.7	26.8	100	74.3	66.9	60	118.9	107.1	20	163.5	147.2	80	208.1	187.4
41	30. š	27.4	101	75.1	67.6	161	119.6	107.7	221	164. 2	147.9	281	208.8	188.0
42	31. 2	28. 1	02	75.8	68.3	62	120.4	108.4	22	165.0	148.5	82	209.6	188.7
43	32.0	28.8	03	76. 5	68. 9	63	121.1	109.1	23	165. 7	149.2	83	210.3	189.4
44	32.7	29.4	04	77.3	69.6	64	121.9	109.7	24	166.5	149.9	84	211.1	190.0
45 46	$33.4 \\ 34.2$	$\begin{vmatrix} 30.1 \\ 30.8 \end{vmatrix}$	$05 \\ 06$	78. 0 78. 8	70.3 70.9	65 66	122. 6 123. 4	110. 4 111. 1	25	167. 2	150.6	85	211.8	190.7
47	34. 9	31.4	07	79.5	71.6	67	123. 4	111. 7	$\frac{26}{27}$	168.0	151. 2	86	212.5	191.4
48	35.7	32.1	08	80.3	72.3	68	124.1 124.8	112.4	$\frac{27}{28}$	168.7 169.4	151. 9 152. 6	87 88	213. 3 214. 0	192. 0 192. 7
49	36. 4	32.8	09	81.0	72. 9	69	125.6	113. 1	29	170. 2	153. 2	89	214. 8	193.4
50	37. 2	33. 5	10	81. 7	73.6	70	126.3	113.8	30	170.9	153. 9	90	215.5	194.0
51	37.9	34.1	111	82.5	74.3	171	127. 1	114.4	231	171.7	154.6	291	216.3	194.7
52	38.6	34.8	12	83.2	74.9	72	127.8	115.1	32	172.4	155.2	92	217.0	195.4
53	39. 4	35.5	13	84.0	75.6	73	128.6	115.8	33	173.2	155.9	93	217.7	196.1
54	40.1	36.1	14	84.7	76.3	74	129.3	116.4	34	173.9	156.6	94	218.5	196.7
55	40.9	36.8	15	85.5	77.0	75	130. 1	117.1	35	174.6	157.2	95	219. 2	197.4
56 57	41. 6 42. 4	$37.5 \\ 38.1$	16 17	86. 2	77.6	76	130.8	117.8	36	175.4	157.9	96	220.0	198.1
58	43.1	38. 8	18	86. 9 87. 7	78. 3 79. 0	77 - 78	131.5 132.3	118. 4 119. 1	$\begin{vmatrix} 37 \\ 38 \end{vmatrix}$	$176.1 \\ 176.9$	158. 6 159. 3	$\begin{bmatrix} 97 \\ 98 \end{bmatrix}$	220.7 221.5	198. 7 199. 4
59	43.8	39.5	19	88.4	79.6	79	132.3 133.0	119.1	38 39	176. 9	159.5 159.9	98	$\frac{221.5}{222.2}$	200. 1
60	44.6	40.1	20	89. 2	80.3	80	133.8	120.4	40	178. 4	160.6	300	222. 9	200. 7
														200.1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
,					4	00 /10	20 2280	910)					!	
					4	a" [13	V- 738	. 5123						

48° (132°, 228°, 312).

TABLE 2.

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Difference of Latitude and Departure for 42° (138°, 222°, 318°).

				1100 01 1	31701044					, 111	, 010	,-		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	223.7	201.4	361	268. 3	241.6	421	312.9	281.7	481	357.5	321.9	541	402.1	362.0
02	224. 4	202.1	62	269.0	242.2	22	313.6	282.4	82	358. 2	322.5	42	402.8	362.7
03	225. 2	202.8	63	269.8	242.9	23	314.4	283.0	83	358.9	323.2	43	403.5	363.3
04	225.9	203.4	64	270.5	243.6	24	315. 1	283.7	84	359.7	323. 9	44	404.3	364.0
05	226.6	204.1	65	271.2	244.2	25	315.8	284.4	85	360.4	324.6	45	405.0	364.7
06	227.4	204.8	66	272.0	244.9	26	316.6	285.1	86	361. 2	325. 2	46	405.8	365. 4
07	228.1	205.4	67	272.7	245.6	27	317.3	285.7	87	361.9	325.9	47	406.5	366.0
08	228.9	206. 1	68	273.5	246. 2	$\frac{28}{29}$	318. 1 318. 8	286.4	88	$362.7 \\ 363.4$	326.6	48 49	407. 2 408. 0	$366.7 \\ 367.4$
09 10	229.6 230.4	206.81 207.4	69 70	274. 2 275. 0	$\begin{vmatrix} 246.9 \\ 247.6 \end{vmatrix}$	30	319.6	$287.1 \\ 287.7$	89 90	364. 1	$\begin{vmatrix} 327.2 \\ 327.9 \end{vmatrix}$	50	408. 7	368. 0
	$\frac{230.4}{231.1}$	$\frac{201.4}{208.1}$	371	$\frac{275.0}{275.7}$	248.3	431	320.3	$\frac{288.4}{288.4}$	491	364. 9	328. 6	551	409.5	368.7
311 12	231.1 231.9	208. 1	72	276.5	248. 9	32	321.0	289. 1	92	365.6	329. 2	$\frac{551}{52}$	410. 2	369. 4
13	232.6	209.4	73	277. 2	249.6	33	321. 8	289. 7	93	366. 4	329. 9	53	411.0	370.0
14	233.3	210.1	74	277.9	250.3	34	$321.8 \\ 322.5$	290.4	94	367.1	330.6	54	411. 0 411. 7	370. 7
15	234.1	210.8	75	278.7	250.9	35	323.3	291.1	95	367.9	331.3	55	412.4	371.4
16	234.8	211.5	76	279.4	251.6	36	$324.0 \\ 324.8$	291.7	96	368.6	331.9	56	413. 2 413. 9	372.0
17	235.6	212.1	77	280. 2	252.3	37	324.8	292.4	97	369.3	332.6	57	413. 9	372.7
18	236.3	212.8	78 70	280. 9	252.9	38	325.5	293.1	98	370.1	333.3	58 59	414.7	373.4
19 20	$237.1 \\ 237.8$	$\begin{vmatrix} 213.5 \\ 214.1 \end{vmatrix}$	79 80	281.7 282.4	253. 6 254. 3	39 40	$326.2 \\ 327.0$	293. 8 294. 4	99 500	$370.8 \\ 371.6$	333.9 334.6	60	415. 4 416. 2	374. 1 374. 7
321	$\frac{237.8}{238.6}$	$\frac{214.1}{214.8}$	381	$\frac{282.4}{283.1}$	$\frac{254.5}{254.9}$	441	$\frac{327.0}{327.7}$	$\frac{294.4}{295.1}$	501	$\frac{371.0}{372.3}$	335.3	561	416. 9	375.4
$\begin{array}{c} 321 \\ 22 \end{array}$	239. 3	214. 8	82	283. 1	255.6	441	328.5	295. 1	02	373.1	335. 9	62	417.6	376.1
23	240.0	216. 1	83	284.6	256. 3	43	329. 2	296.4	03	373.8	336.6	63	418.4	376.7
24	240, 8	216.8	84	285.4	257.0	44	330.0	297.1	04	374.5	337.2	64	417. 6 418. 4 419. 1 419. 9	377.4
25	241.5	217.5	85	286.1	257. 6 258. 3	45	330.7	$ \begin{array}{c c} 297.8 \\ 298.4 \end{array} $	05	375.3	337.9	65	419.9	378.1
26	242.3	218.1	86	286.9	258.3	46	331.4	298.4	06	376.0	338.6	66	420.6	378.7
27	243.0	218.8	87	287.6	259.0	47	332. 2	299. 1	07	376.8	339.3 339.9	67 68	421.4	379. 4 380. 1
28 29	$243.8 \\ 244.5$	$\begin{vmatrix} 219.5 \\ 220.1 \end{vmatrix}$	88 89	288.3 289.1	259. 6 260. 3	48 49	332. 9 333. 7	299. 8 300. 4	08 09	377.5 378.3	340. 6	69	$422.1 \\ 422.8$	380. 7
30	245. 2	220. 8	90	289. 8	261.0	50	334.4	301.1	10	379.0	341.3	70	423.6	381.4
331	246.0	221.5	391	290.6	261.6	451	335. 2	301.8	511	379.7	341.9	571	424.3	382.1
32	246.7	222, 2	92	291.3	262.3	52	335.9	302.5	12	380.5	342.6	72	425.1	382.8
33	247.5	$222.8 \\ 223.5$	93	292.1	263.0	53	336.6	303.1	13	381.2	343. 3	73	425.8	383.4
34	248. 2	223.5	94	292. 8	263.6	54	337.4	303. 8	14	382.0	343.9	74	426.6	384.1
35 36	$249.0 \\ 249.7$	224. 2	95	293.5 294.3	264.3	55 56	338.1	304.5	15 16	382.7	344. 6 345. 3	75 76	427.3	384. 8 385. 4
37	250.4	$\begin{vmatrix} 224.8 \\ 225.5 \end{vmatrix}$	96 97	295.0	265.0 265.7	57	338.9 339.6	305. 1 305. 8	17	$383.5 \\ 384.2$	346.0	77	428. 0 428. 8	386.1
38	251. 2	226. 2	98	295.8	266.3	58	340.4	306.5	18	384.9	346.6	78	429.5	386.8
39	251.9	226.8	99	296.5	267. 0	59	341.1	307. 1	19	385.7	347.3	79	430.3	387.4
40	252.7	227.5	400	297.3	267.7	60	341.8	307.8	20	386.4	348.0	80	431.0	388.1
341	253.4	228. 2	401	298.0	268.3	461	342.6	308.5	521	387.2	348.6	581	431.8	388.8
42	254. 2 254. 9	228.8	02	298.7	$269.0 \\ 269.7$	62	343.3	309.1	22	387.9	349.3	82	432.5 433.2	389.4
43	254.9	229.5	03	299.5	269.7	63	344.1	309.8	23	388.7	350.0	83	433.2	390.1
44 45	255. 6 256. 4	230. 2 230. 9	04 05	300. 2 301. 0	270. 3 271. 0	64 65	344. 8 345. 6	$310.5 \\ 311.2$	$\frac{24}{25}$	389. 4 390. 1	350. 6 351. 3	84 85	434. 0 434. 7 435. 5	390. 8 391. 4
46	257.1	231.5	06	301.7	271.0 271.7	66	346. 3	311. 8	26	390. 1	352.0	86	435.5	392.1
47	257. 9	232.2	07	302.5	272.3	67	347.0	312.5	27	391.6	352.6	87	436. 2	392.8
48	258.6	232.9	08	303. 2	273.0	68	347.8	313.2	28	392.4	353. 3	88	436. 2 437. 0	393.4
49	259.4	233.5	09	303. 9	273.7	69	348.5	313.8	29	393. 1	354.0	89	437.7	394.1
50	260.1	234. 2	10	304.7	274.3	70	349.3	314.5	30	393.9	354.6	90	438.4	394.8
351	260.8	234. 9	411	305. 4 306. 2	275.0	471	350.0	315. 2	531	394.6	355.3	591	439. 2 440. 0	395.4
52 53	261. 6 262. 3	235. 5 236. 2	12 13	306. 2	$\begin{vmatrix} 275.7 \\ 276.4 \end{vmatrix}$	72 73	350. 8 351. 5	315. 8 316. 5	32 33	395.3 396.1	356. 0 356. 6	92 93	440.0	396. 1 396. 8
54	263. 1	236. 9	14	307. 7	277. 0	74	352.3	317. 2	$\frac{33}{34}$	396.8	357. 3	$\frac{93}{94}$	441.4	397.5
55	263.8	237.5	15	308. 4	277.7	$7\overline{5}$	353.0	317.8	35	397.6	358. 0	95	442.2	398.1
56	264.6	238.2	, 16	309.1	278.4	76	353.7	318.5	36	398.3	358.6	96	442.9	398.8
57	265. 3	238. 9	17	309.9	279.0	77	354.5	319.2	37	399.1	359.3	97	443.7	399.5
58	266. 0	239. 6	18	310.6	279. 7	78	355.2	319.9	38	399.8	360. 0	98	444.4	400.1
59 60	266.8 267.5	240. 2 240. 9	19 20	311. 4 312. 1	280. 4 281. 0	79 80	356. 0 356. 7	$\begin{vmatrix} 320.5 \\ 321.2 \end{vmatrix}$	39 40	400.6	360. 6 361. 3	99 600	445. 2 445. 9	400.8 401.5
30	201.0	240. 3	20	012. 1	201.0	30	000.7	021.2	10	TU1. 3	301. 3	000	110. 0	101.0
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
<u> </u>						100 (1								

48° (132°, 228°, 312°).

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TABLE 2.

Difference of Latitude and Departure for 43° (137°, 223°, 317°).

			Differe	ence of J	Latitud	e and	Departi	are for	43° (1	137°, 228	30, 3170	').		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.7	0.7	61	44.6	41.6	121	88.5	82.5	181	132. 4	123. 4	241	176.3	164. 4
2	1.5	1.4	62	45.3	42.3	22	89. 2	83. 2	82	133. 1	124.1	42	177.0	165.0
3	$\frac{2.2}{2.9}$	$\frac{2.0}{2.7}$	63	46.1	.43.0	23	90.0	83.9	83	133.8	124.8	43	177.7	165.7
5	3.7	2. 7 3. 4	64 65	46.8 47.5	43.6 44.3	$\frac{24}{25}$	90. 7 91. 4	84.6	84 85	134. 6 135. 3	125. 5 126. 2	44 45	$178.5 \\ 179.2$	166. 4 167. 1
6	4.4	4.1	66	48.3	45.0	26	92. 2	85. 9	86	136.0	126. 9	46	179.9	167.8
7	5. 1	4.8	67	49.0	45. 7	27	92. 9	86.6	87	136.8	127.5	47	180.6	168.5
8	5.9	5.5	68	49.7	46.4	28	93.6	87.3	88	137.5	128. 2	48	181.4	169.1
9	6.6 7.3	6. 1 6. 8	69 70	50.5 51.2	47. 1 47. 7	29 30	94.3	88.0	89 90	138. 2 139. 0	128. 9 129. 6	49 50	182. 1 182. 8	169.8
11	$\frac{1.3}{8.0}$	$\frac{0.8}{7.5}$	$-\frac{70}{71}$	$\frac{51.2}{51.9}$	48.4	131	$\frac{95.1}{95.8}$	$\frac{88.7}{89.3}$	$\frac{90}{191}$	$\frac{139.0}{139.7}$	130.3	251	183.6	170.5 171.2
12	8.8	8. 2	72	52.7	49.1	32	96.5	90.0	92	140.4	130. 9	52	184.3	171.9
13	9. 5	8.9	73	53. 4	49.8	33	97.3	90.7	93	141. 2	131.6	53	185.0	172.5
14	10.2	9.5	74	54.1	50.5	34	98.0	91.4	94	141.9	132.3	54	185.8	173.2
15	11.0	10.2	75	54.9	51.1	35	98.7	92.1	95	142.6	133.0	55	186.5	173.9
16 17	11. 7 12. 4	$10.9 \\ 11.6$	76 77	55. 6 56. 3	$51.8 \\ 52.5$	36 37	99. 5 100. 2	92. 8 93. 4	96 97	143.3 144.1	133. 7 134. 4	56 57	187. 2 188. 0	174. 6 175. 3
18	13. 2	12.3	78	57.0	53. 2	38	100.9	94.1	98	144.8	135.0	58	188.7	176.0
19	13.9	13.0	79	57.8	53.9	39	101.7	94.8	99	145.5	135. 7	59	189.4	176.6
20	14.6	13.6	80	58.5	54.6	_40	102.4	95.5	200	146.3	136.4	60	190.2	177.3
21	15. 4	14.3	81	59. 2	55. 2	141	103. 1	96.2	201	147.0	137.1	261	190.9	178.0
22	16.1	15.0	82 83	60.0	55. 9 56. 6	42	103.9	96.8	02	147. 7	137.8	62 63	191.6	178. 7 179. 4
23 24	16.8 17.6	15. 7 16. 4	84	60. 7 61. 4	57.3	43 44	104. 6 105. 3	98.2	03 04	$148.5 \\ 149.2$	138. 4 139. 1	64	192. 3 193. 1	180.0
25	18.3	17.0	85	62. 2	58.0	45	106.0	98.9	05	149.9	139. 8	65	193.8	180.7
26	19.0	17.7	86	62.9	58.7	46	106.8	99.6	06	150.7	140.5	66	194.5	181.4
27	19.7	18.4	87	63. 6	59.3	47	107.5	100.3	07	151.4	141. 2	67	195.3	182.1
28 29	$20.5 \\ 21.2$	19.1 19.8	88 89	64. 4 65. 1	60. 0 60. 7	48 49	108. 2 109. 0	100. 9 101. 6	08 09	152. 1 152. 9	141.9 142.5	68 69	196. 0 196. 7	182. 8 183. 5
30	$21.2 \\ 21.9$	20.5	90	65.8	61.4	50	109.7	102.3	10	153.6	143. 2	70	197.5	184.1
31	22.7	21.1	91	66.6	62.1	151	110.4	103.0	211	154.3	143.9	271	198. 2	184.8
32	$23.4 \\ 24.1$	$\begin{array}{ c c c c }\hline 21.8 \\ 22.5 \\ \end{array}$	92 93	67. 3 68. 0	62. 7 63. 4	$\frac{52}{53}$	111. 2 111. 9	103. 7 104. 3	12 13	155. 0 155. 8	144. 6 145. 3	$\begin{array}{c} 72 \\ 73 \end{array}$	198. 9 199. 7	185. 5 186. 2
34	24. 9	23. 2	94	68. 7	64. 1	54	112.6	105.0	14	156.5	145. 9	74	200. 4	186. 9
35	25. 6	23. 9	95	69.5	64.8	55	113.4	105. 7	15	157. 2	146.6	75	201. 1	187.5
36	26. 3	24.6	96	70.2	65. 5	56	114.1	106.4		158.0	147.3	76	201.9	188. 2
37	27.1	25. 2	97	70.9	66. 2	57	114.8	107.1	17	158.7	148.0	77 78	202. 6 203. 3	188.9
38 39	$27.8 \\ 28.5$	25. 9 26. 6	98 99	$71.7 \\ 72.4$	66.8 67.5	58 59	115. 6 116. 3	107.8	18 19	159. 4 160. 2	148. 7 149. 4	79	204.0	189. 6 190. 3
40	29. 3	27.3	100	73. 1	68. 2	60	117.0	109.1	20	160.9	150.0	80	204.8	191.0
41	30.0	28.0	101	73.9	68. 9	161	117.7	109.8	221	161.6	150.7	281	205.5	191.6
42	30.7	28.6	02	74.6	69.6	62	118.5	110.5	22	162.4	151.4	82	206. 2	192.3
43	31.4	29.3	03	75.3	70.2	63	119.2	111.2	23	163.1	152.1	83	207. 0 207. 7	193.0
44 45	$32.2 \\ 32.9$	30.0	$04 \\ 05$	$76.1 \\ 76.8$	70. 9 71. 6	$\frac{64}{65}$	119.9 120.7	111.8 112.5	$\frac{24}{25}$	163. 8 164. 6	152. 8 153. 4	84 85	208.4	193. 7 194. 4
46	33.6	31.4	06	77.5	72.3	66	121.4	113. 2	26	165.3	154.1	86	209.2	195. 1
47	34.4	32.1	07	78.3	73.0	67	122. 1	113.9	27	166.0	154.8	87	209.9	195.7
48	35.1	32.7	08	79.0	73.7	68	122.9	114.6	28	166.7	155.5	88	210.6	196.4
49 50	35. 8 36. 6	33.4	09 10	79. 7 80. 4	74.3 75.0	69 70	123. 6 124. 3	115. 3 115. 9	29 30	167. 5 168. 2	156. 2 156. 9	89 90	211. 4 212. 1	197. 1 197. 8
51	37.3	34. 8	111	81.2	75.7	171	124. 5	116.6	$\frac{30}{231}$	168.9	157.5	291	212. 1	$\frac{197.8}{198.5}$
52	38.0	35.5	12	81. 9	76.4	72	125. 8	117.3	32	169.7	158. 2	92		199.1
53	38.8	36.1	13	82.6	77.1	73	126.5	118.0	33	170.4	158. 9	93	214.3	199.8
54	39.5	36.8	14	83.4	77.7	74	127.3	118.7	34	171.1	159.6	94	215.0	200.5
55	40.2	37.5	15	84.1	78.4	75 76	$\begin{vmatrix} 128.0 \\ 128.7 \end{vmatrix}$	119.3	35	171.9	160.3	95 96	215. 7 216. 5	201. 2 201. 9
56 57	41. 0 41. 7	38. 2	16 17	84. 8 85. 6	79.1 79.8	76 77	128. 1	$\begin{vmatrix} 120.0 \\ 120.7 \end{vmatrix}$	36 37	172.6 173.3	161. 0 161. 6	96	$210.3 \\ 217.2$	201. 9
58	42.4	39.6	18	86.3	80.5	78	130. 2	121.4	38	174.1	162. 3	98	217.9	203. 2
59	43.1	40.2	19	87.0	81. 2	79	130.9	122.1	39	174.8	163.0	99	218.7	203.9
60	43.9	40.9	20	87.8	81.8	80	131.6	122.8	40	175.5	163. 7	300	219.4	204.6
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
						47° (1	33°, 227	°, 313°).					

47° (133°, 227°, 313°).

TABLE 2.

Difference of Latitude and Departure for 43° (137°, 223°, 317°).

									(-	, ,	,	, .		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	220. 1	205.3	361	264.0	246. 2	421	307.9	287.1	481	351.8	328. 1	541	395. 7	369.0
02	220.1	206. 0	62	264.8	246. 9	22	308.6	287. 8	82	352.5	328. 7	42	396.4	369.7
03	221.6	206. 7	63	265.5	247.6	23	309.4	288.5	83	353.2	329. 4	43	397.1	370.3
04	222.3	207.3	64	266. 2	248.3	$\frac{24}{24}$	310. 1	289. 2	84	354.0	330. 1	44	397.9	371.0
05	223. 1	208.0	65	267.0	248. 9	25	310.8	289.9	85	354.7	330.8	45	398.6	371.7
06	223.8	208.7	66	267.7	249.6	26	311.6	290.5	86	355.4	331.4	46	399.3	372.4
07	224.5	209.4	67	268.4	250.3	27	312.3	291.2	87	356. 2	332.1	47	400.1	373.1
08	225.3	210.1	68	269.1	251.0	28	313.0	291.9	88	356.9	332.8	48	400.8	373.7
09	226.0	210.7	69	269.9	251.7	29	313.8	292.6	89	357.7	333.5	49	401.5	374.4
10	226. 7	211.4	70	270.6	252.3	30	314.5	293.3	90	358.4	334.2	50	402. 2	375.1
311	227.5	212.1	371	271.3	253.0	431	315.2	293.9	491	359.1	334. 9	551	403.0	375.8
12	228. 2	212.8	72	272.1	253.7	32	316.0	294.6	92	359.8	335.5	52	403.7	376.5
13	228. 9	213.5	73	272.8	254.4	33	316. 7	295. 3.	93	360.6	336.2	53	404.4	377.1
14	229.7	214. 2	74	273.5	255.1	34	317.4	296.0	94	361.3	336. 9	54	405. 2	377.8
15	230.4	214.8	75	274.3	255.8	35	318.1	296.7	95	362.0	337.6	55	405.9	378.5
16	231.1	215.5	76	275.0	256.4	36	318.9	297.4	96	362.8	338.3	56	406.6	379.2
17	231.8	216.2	77	275.7	257.1	37	319.6	298.0	97	363.5	338.9	57	407.4	379.9
18	232.6	216.9	78	276.5	257.8	38	320.3	298. 7	98	364. 2	339.6	58	408.1	380.6
19	233.3	217.6	79	277.2	258.5	39	321.1	299.4	99	364.9	340.3	59	408.8	381.2
20	234.0	218. 2	80	277.9	259. 2	40	321.8	300.1	500	365. 7	341.0	60	409.6	381.9
321	234.8	218.9	381	278. 7	259.8	441	322.5	300.8	501	366. 4	341.7	561	410.3	382.6
22	235.5	219.6	82	279.4	260.5	42	323.3	301.4	02	367.1	342. 4	62	411.0	383.3
23	236.2	220.3	83	280. 1	261. 2	43	324.0	302.1	03	367.8	343.0	63	411.8	384.0
24	237. 0	221.0	84	280.8	261.9	44	324. 7	302.8	04	368.6	343. 7	64	412.5	384.6
25	237. 7	221. 7	85	281.6	262.6	45	325.5	303.5	05	369.3	344. 4	65	413. 2	385.3
26	238.4	222. 3	86	282.3	263.3	46	326.2	304.2	06	370.0	345.1	66	414.0	386.0
27	239. 2	223.0	87	283.0	263. 9	47	326.9	304.9	07	370.8	345.8	67	414.7	386.7
28	239. 9	$\begin{vmatrix} 223.7 \\ 224.4 \end{vmatrix}$	88	283.7	264.6	48	$\begin{vmatrix} 327.7 \\ 328.4 \end{vmatrix}$	305.5	08	$\begin{array}{c} 371.5 \\ 372.3 \end{array}$	346.5	68	415.4	387.4
29 30	240.6 241.4	225.1	89 90	284. 5 285. 2	265. 3 266. 0	49 50	329.1	306. 2	09 10	373.0	347. 1 347. 8	69 70	416. 2	388. 1 388. 7
	242.1	$\frac{225.1}{225.7}$		$\frac{286.2}{286.0}$	$\frac{266.0}{266.7}$		$\frac{329.1}{329.9}$	307.6			348.5	571	417.6	
331	242. 1	226. 4	391 92	286. 7	267. 3	$\frac{451}{52}$	330.6	308. 3	$\begin{array}{c} 511 \\ 12 \end{array}$	373. 8 374. 5		72	418.3	389.4
$\begin{vmatrix} 32 \\ 33 \end{vmatrix}$	243.5	227. 1	93	287.4	268. 0	53	331.3	309.0	13	375. 2	$\begin{vmatrix} 349.2 \\ 349.9 \end{vmatrix}$	73	419.1	390. 1 390. 8
34	244.3	227.8	94	288. 2	268.7	54	332.1	309.6	14	376.0	350. 5	74	419.8	301.5
35	245. 0	228.5	95	288.9	269.4	55	332.8	310.3	15	376.6	351. 2	75	420.5	391.5 392.2
36	245. 7	229. 2	96	289.6	270.1	56	333.5	311.0	16	377. 4	351. 9	76	421. 3	392.8
37	246.5	229.8	97	290.4	270.8	57	334.3	311.7	17	378. 2	352.6	77	422.0	393.5
38	247.2	230.5	98	291.1	271.4	58	335.0	312.4	18	378. 9	353. 3	78	422.7	394. 2
39	247.9	231.2	99	291.8	272.1	59	335.7	313.0	19	379.6	354.0	79	423.5	394.9
40	248.7	231.9	400	292.6	272.8	60	336.5	313.7	20	380.3	354.6	80	424.2	395.6
341	249.4	232.6	401	293.3	273.5	461	337.2	314.4	521	381.1	355. 3	581	424.9	396.2
42	250.1	233. 2	02	294.0	274. 2	62	337. 9	315. 1	22	381.8	356.0	82	425.7	396. 9
43	250.9	233.9	03	294.7	274.9	63	338.7	315.8	23	382.6	356.7	83	426.4	397.6
44	251.6	234.6	04	295.5	275.5	64	339.4	316.5	24	383.3	357.4	84	427.1	398.3
45	252.3	235.3	05	296. 2	276.2	65	340.1	317. 1	25	384.0	358.1	85	427.9	399.0
46	253. 1	236.0	06	296. 9	276.9	66	340.8	317.8	26	384.7	358.7	86	428.6	399.6
47	253.8	236.7	07	297.7	277.6	67	341.6	318.5	27	385.5	359.4	87	429.3	400.3
48	254.5	237.3	08	298.4	278.3	68	342.3	319. 2	28	386. 2	360.1	88	430.1	401.0
49	255.3	238.0	09	299.1	278.9	69	343.0	319.9	29	386. 9	360.8	89	430.8	401.7
50	256.0	238.7	10	299.9	279.6	70	343.7	320.5	30_	387.6	361.5	90	431.5	402.4
351	256. 7	239.4	411	300.6	280.3	471	344.5	321.2	531	388.4	362.1	591	432.3	403.1
52	257.4	240. 1	12	301.3	281.0		345.2	321.9	32	389. 1	362.8	92	433.0	403.7
53	258. 2	240.8	13	302.1	281. 7	73	345.9	322.6	33	389. 9	363.5	93	433. 7	404.4
54	258.9	241.4	14	302.8	282.4	74	346. 7	323.3	34	390.6	364.2	94	434.5	405. 1
55	259.6	242.1	15	303.5	283.0	75	347.4	324.0	35	391.3	364.9	95	435. 2	405.8
56	260.4	242.8	16	304.3	283.7	76	348.1	324.6	36	392.0	365.5	96	435.9	406.5
57	261.1	243.5	17	305.0	284.4	77	348. 9	325.3	37	392.8	366. 2	97	436.7	407.2
58 59	261. 8 262. 6	244. 2	18	305. 7	$\begin{vmatrix} 285.1 \\ 285.8 \end{vmatrix}$	78	349.6	326. 0	38	393.5	366.9	98	437.4	407.8
60	263.3	244.8 245.5	$\frac{19}{20}$	306. 4 307. 2	286. 4	79 80	350. 3 351. 1	$\begin{vmatrix} 326.7 \\ 327.4 \end{vmatrix}$	39 40	$394.2 \\ 394.9$	367. 6 368. 3	99 600	438. 1 438. 8	408.5 409.2
00	200.0	230.0	20	001.2	200.4	30	001.1	021.4	40	004. 0	505.5	000	100.0	100.2
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Don	Tot	Diet	Don	Tot	Diet	Den	Lot
Dist.	Dep.	Lat.	Dist.	Deb.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.

47° (133°, 227°, 313°).

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TABLE 2. Difference of Latitude and Departure for 44° (136°, 224°, 316°).

			Differ	ence or .	Datituo	e and	Depart	ure 101	44 ().		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0.7	0.7	61	43.9	42.4	121	87.0	84.1	181	130. 2	125.7	241	173.4	167.4
2	1.4	1.4	62	44.6	43.1	22	87.8	84.7	82	130.9	126.4	42	174. 1	168. 1
3	2. 2	2.1	63	45.3	43.8	23	88. 5	85.4	83	131.6	127.1	43	174.8	168.8
4	2.9	2.8	64	46.0	44.5	24	89. 2	86. 1	84	132.4	127.8	44	175.5	169.5
5	3.6	3.5	65	46.8	45.2	25	89.9	86.8	85	133.1	128.5	45	176. 2	170. 2
6	4.3	4.2	66	47.5	45.8	26	90.6	87.5	86	133.8	129. 2	46	177.0	170.9
$\begin{bmatrix} 7 \\ 8 \end{bmatrix}$	5. 0 5. 8	$\begin{array}{ c c c } 4.9 \\ 5.6 \end{array}$	67 68	48. 2 48. 9	$\begin{array}{ c c c c }\hline 46.5 \\ 47.2 \end{array}$	$\begin{array}{c} 27 \\ 28 \end{array}$	91.4 92.1	88. 2 88. 9	87	134. 5 135. 2	129. 9 130. 6	47	177.7	171.6
9	6.5	6.3	69	49.6	47.9	$\frac{26}{29}$	$92.1 \\ 92.8$	89.6	88 89	136.0	131.3	48 49	178. 4 179. 1	172.3 173.0
10	7.2	6.9	70	50.4	48.6	30	93.5	90.3	90	136.7	132.0	50	179.8	173.7
$\frac{11}{11}$	$\frac{7.9}{7.9}$	7.6	$\frac{-71}{71}$	51.1	49.3	131	$\frac{-94.2}{}$	91.0	191	137. 4	132.7	$\frac{-55}{251}$	180.6	174.4
$\hat{12}$	8.6	8.3	$7\overline{2}$	51.8	50.0	32	95. 0	91.7	92	138. 1	133.4	52	181.3	175.1
13	9.4	9.0	73	52.5	50.7	33	95.7	92.4	93	138.8	134. 1	53	182.0	175.7
14	10.1	9.7	74	53.2	51.4	34	96.4	93.1	94	139.6	134.8	54	182.7	176.4
15	10.8	10.4	75	54.0	52. 1	35	97. 1	93.8	95	140.3	135.5	55	183.4	177.1
16	11.5	11.1	76	54.7	52.8	36	97.8	94.5	96	141.0	136. 2	56	184. 2	177.8
17	12.2	11.8	77	55.4	53.5	37	98.5	95. 2	97	141.7	136.8	57	184.9	178.5
18	12.9	12.5	78	56.1	54.2	38	99.3	95.9	98	142.4	137.5	58	185.6	179. 2 179. 9
19 20	13. 7 14. 4	13. 2 13. 9	79 80	56.8 57.5	54. 9 55. 6	39 40	100. 0 100. 7	96. 6 97. 3	99 200	143. 1 143. 9	138. 2 138. 9	59 60	186.3 187.0	179.9
$\frac{20}{21}$	15.1	14.6	$\frac{80}{81}$	$\frac{-37.3}{58.3}$	$\frac{56.8}{56.3}$	$\frac{40}{141}$	100.7	$\frac{97.3}{97.9}$	$\frac{200}{201}$	143. 9	$\frac{138.9}{139.6}$	$\frac{60}{261}$	187.7	
$\frac{21}{22}$	15. 1	15. 3	81	59.0	57.0	$\frac{141}{42}$	101.4	98.6	$\frac{201}{02}$	144.6 145.3	140.3	$\frac{261}{62}$	187.7	181. 3 182. 0
23	16.5	16.0	83	59.7	57.7	43	102. 1	99.3	03	146.0	141.0	63	189. 2	182. 7
$\frac{23}{24}$	17.3	16.7	84	60.4	58.4	44	103.6	100.0	04	146.7	141.7	64	189. 9	183. 4
25	18.0	17.4	85	61.1	59.0	$4\overline{5}$	104.3	100.7	$0\overline{5}$	147. 5	142.4	65	190.6	184.1
26	18.7	18.1	86	61.9	59.7	46	105.0	101.4	06	148. 2	143.1	66	191.3	184.8
27	19.4	18.8	87	62.6	60.4	47	105.7	102.1	07	148.9	143.8	67	192.1	185.5
28	20.1	19.5	88	63. 3	61.1	48	106.5	102.8	08	149.6	144.5	68	192.8	186. 2
29	20.9	20.1	89	64.0	61.8	49	107.2	103.5	09	150.3	145. 2	69	193.5	186. 9
30	21.6	20.8	90	64.7	62.5	50	107.9	104.2	10	151.1	145.9	70	194. 2	187.6
31 32	$ \begin{array}{c c} 22.3 \\ 23.0 \end{array} $	21.5	91	65. 5 66. 2	63.2	151	108.6	104.9	211	151.8	146.6	$\frac{271}{79}$	194. 9	188.3
33	$\frac{23.0}{23.7}$	22. 2 22. 9	92 93	66. 9	63. 9 64. 6	52 53	109.3 110.1	105.6 106.3	12 13	152. 5 153. 2	147. 3 148. 0	72 73	195. 7 196. 4	188. 9 189. 6
34	$\frac{23.7}{24.5}$	23.6	94	67.6	65. 3	54	110.1	107. 0	14	153. 9	148.7	74	197.1	190.3
35	25. 2	24.3	95	68.3	66.0	55	111.5	107.7	15	154. 7	149.4	75	197. 8	191.0
36	25.9	25.0	96	69.1	66.7	56	112.2	108.4	16	155.4	150.0	76	198.5	191.7
37	26.6	25.7	97	69.8	67.4	57	112.9	109.1	17	156. 1	150.7	77 -	199.3	192.4
38	27.3	26. 4	98	70.5	68. 1	58	113.7	109.8	18	156.8	151.4	78	200.0	193. 1
39	28.1	27.1	99	71.2	68.8	59	114.4	110.5	19	157.5	152. 1	79	200.7	193.8
40	28.8	27.8	100	71.9	69.5	60	115.1	111.1	20	158.3	152.8	80	201.4	194.5
41	29.5	28.5	101	72. 7	70.2	161	115.8	111.8	221	159.0	153.5	281	202. 1	195. 2
42 43	30. 2 30. 9	29. 2 29. 9	02	73. 4 74. 1	70. 9 71. 5	62 63	116. 5 117. 3	112. 5 113. 2	$\frac{22}{23}$	159. 7 160. 4	154. 2 154. 9	82 83	202. 9 203. 6	195. 9 196. 6
43	31. 7	30.6	03	74.1	72.2	64	118.0	113. 2		161.1	155. 6	84	204. 3	190. 0
45	32. 4	31.3	05	75. 5	72. 2 72. 9	65	118.7	114.6	25	161.9	156. 3	85	205. 0	198.0
46	33. 1	32.0	06	76. 3	73.6	66	119.4	115.3	26	162.6	157. 0	86	205. 7	198.7
47	33.8	32.6	07	77.0	74.3	67	120.1	116.0	27	163.3	157.7	87	206.5	199.4
48.	34.5	33. 3	08	77.7	75.0	68	120.8	116.7	28	164.0	158.4	88	207. 2	200.1
49	35. 2	34.0	09	78.4	75.7	69	121.6	117.4	29	164.7	159.1	89	207.9	200.8
50	36.0	34.7	10	$\frac{79.1}{1}$	76.4	70	122.3	118.1	30	165.4	159. 8	90	208.6	201.5
51	36.7	35.4	111	79.8	77.1	171	123.0	118.8	231	166.2	160. 5		209.3	202.1
52 52	37. 4 38. 1	36. 1 36. 8	12 12	80.6	77.8 78.5	$\begin{array}{c} \cdot 72 \\ 73 \end{array}$	123.7 124.4	119.5 120.2	$\frac{32}{33}$	166. 9	161.2 161.9	92 93	210. 0 210. 8	202. 8 203. 5
53 54	38. 1	37.5	$\begin{array}{c} 13 \\ 14 \end{array}$	81. 3 82. 0	79.2	74	124.4 125.2	120. 2	$\frac{33}{34}$	167. 6 168. 3	162.6	$\frac{93}{94}$	210.8	203. 5
55	39. 6	38. 2	15	82.7	79. 9	75	125.2 125.9	121.6	35	169. 0	163. 2	95	212. 2	204. 2
56	40.3	38. 9	16	83. 4	80.6	76	126.6	122.3	36	169.8	163. 9	96	212.9	205. 6
57	41.0	39.6	17	84. 2	81.3	77	127.3	123.0	37	170.5	164.6	97	213.6	206.3
58	41.7	40.3	18	84.9	82.0	78	128.0	123.6	38	171.2	165.3	98	214.4	207.0
59	42.4	41.0	19	85.6	82.7	79	128.8	124.3	39	171.9	166.0	99	215.1	207. 7
60	43. 2	41.7	20	86.3	83.4	80	129.5	125.0	40	172.6	166. 7	300	215.8	208.4
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
Dist.	Deb.	nat.	Dist.	Dep.						Dep.	nat.	D150.	Dep.	Lat.
					4	16° (13	34°, 226	°, 314°).					

TABLE 2.

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Difference of Latitude and Departure for 44° (136°, 224°, 316°).

			DIHE!	since or		·	Depart	101		, 22	, 510	,.		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	216.5	209.1	361	259.7	250.8	421	302. 8	292.5	481	346. 0	334. 1	541	389. 2	375.8
02	217.2	209.8	62	260.4	251.5	22	303.6	293.2	82	346. 7 347. 4	334. 8	42	389.9	376.5
03	218.0	210.5	63	261.1	252. 2	23	304.3	293.8	83	347.4	335.5	43	390.6	377.2
04	218.7	211. 2	64	261.8	252. 9	24	305.0	294.5	84	348. 2	336. 2	44	391.3	377.9
05	219. 4 220. 1	$\begin{vmatrix} 211.9\\ 212.6 \end{vmatrix}$	65	262.6	253. 6	$\frac{25}{26}$	305. 7 306. 4	$\begin{vmatrix} 295.2\\ 295.9 \end{vmatrix}$	85 86	348. 9 349. 6	336. 9 337. 6	45 46	392. 0 392. 8	378. 6 379. 3
06 07	220. 1	212. 0	66 67	263.3 264.0	254. 3 254. 9	$\frac{20}{27}$	307.2	296. 6	87	350 3	338.3	47	393.5	380.0
08	221.6	214. 0	68	264. 7	255. 6	28	307.9	297.3	88	350. 3 351. 0 351. 7	339.0	48	394. 2	380.7
09	222.3	214.7	69	265.4	256. 3	29	308.6	298.0	89	351.7	339.7	49	394. 2 394. 9	381.4
10	223.0	215.4	70	266. 2	257.0	30	309.3	298.7	90	352. 5	340.4	_50	395.6	382.1
311	223.7	216.0	371	266. 9	257.7	431	310.0	299.4	491	353. 2	341.1	551	396.4	382.7
12	224.4	216. 7	72	267.6	258. 4	32	310.8	300.1	92	353.9	341.8	52	397.1	383.4
13	225. 2	217.4	73	268.3	259.1	33	311.5	300. 8	93	354. 6 355. 3	342. 5 343. 2	53 54	397.8	384.1
14 15	225. 9 226. 6	$\begin{vmatrix} 218.1\\ 218.8 \end{vmatrix}$	74 75	269. 0 269. 8	259. 8 260. 5	34 35	312. 2 312. 9	301.5	94 95	356.1	343. 9	55 55	398.5 399.2	384. 8 385. 5
16	227. 3	219.5	76	270.5	261. 2	36	313.6	302. 2	96	356. 8	344.6	56	400.0	386. 2
17	228.0	220. 2	77	271. 2	261. 9	37	314.4	303. 6	97	356. 8 357. 5 358. 2	345. 2	57	400.7	386. 9
18	228.8	220.9	78	271.9	262.6	38	315.1	304.3	98	358. 2	345.9	58	401.4	387.6
19	229.5	221.6	79	272.6	263.3	39	315.8	305.0	99	358.9	346.6	59	402.1	388.3 389.0
20	230.2	222.3	80	273.4	264.0	40	316.5	305.7	500	359. 7	347.3	60	402.8	
321	230. 9	223.0	381	274.1	264.7	441	317.2	306.4	501	360.4	348.0	561	403.6	389.7
22 23	231. 6 232. 3	$\begin{vmatrix} 223.7 \\ 224.4 \end{vmatrix}$	82 83	274.8 275.5	265. 4 266. 1	$\frac{42}{43}$	318. 0 318. 7	307. 0 307. 7	$02 \\ 03$	361.1	348. 7 349. 4	$\begin{array}{c} 62 \\ 63 \end{array}$	404. 3 405. 0	390. 4 391. 1
23	232. 3	$\begin{vmatrix} 224.4 \\ 225.1 \end{vmatrix}$	84	276. 2	266. 8	44	319. 4	308. 4	04	361. 8 362. 5	350.1	64	405.7	391. 1
25	233.8	225. 8	85	276. 9	267.5	45	320. 1	309.1	05	363.3	350.8	65	406. 4	392.5
26	234. 5	226.5	86	277. 7	268.1	46	320.8	309.8	06	364.0	351.5	66	407. 2	393.2
27	235.2	227.2	87	278.4	268.8	47	321.5	310.5	07	364. 7	352. 2	67	407.9	393. 9
28	235. 9	227.9	88	279.1	269.5	48	322.3	311. 2	08	365.4	352. 9	68	408.6	394.6
29 30	236.7 237.4	228.6	89 90	279. 8 280. 5	270. 2 270. 9	49 50	323.0 323.7	311.9 312.6	09 10	366. 1 366. 9	353. 6 354. 3	69 70	409.3	395. 3 396. 0
331	$\frac{237.4}{238.1}$	$\frac{229.2}{229.9}$	391	$\frac{280.3}{281.3}$	$\frac{270.3}{271.6}$	451	324.4	313.3	511	367.6	355. 0	571	410.7	396.7
32	238. 8	230. 6	92	282.0	272.3	52	325. 2	314.0	12	368. 3	355.7	72	411.5	397.3
33	239.5	231.3	93	282.7	273.0	53	325.9	314. 7	13	368. 3 369. 0	356.4	73	411. 5 412. 2 412. 9 413. 6	398.0
34	240.3	232.0	94	283.4	273.7	54	326.6	315.4	14	369 7	357.1	74	412.9	398.7
35	241. 0 241. 7	232. 7	95	284.1	274.4	55	327.3	316.1	15	370. 5 371. 2 371. 9	357.8	75	413.6	399.4
36	241.7	233.4	96	284.9	275.1	56	328.0	316.8	16	371.2	358.4	76	414.3 415.1	400.1
37 38	242. 4 243. 1	234. 1 234. 8	97 98	285.6 286.3	275. 8 276. 5	57 58	328.7 329.5	$317.5 \\ 318.2$	17 18	371. 9	359. 1 359. 8	77 78	415. 1	400. 8 401. 5
39	243. 9	235. 5	99	287.0	277. 2	59	330. 2	318.9	19	373.3	360.5	79	416.5	402. 2
40	244.6	236. 2	400	287.7	277.9	60	330.9	319.6	20	374.1	361. 2	80	417. 2	402. 9
341		236.9	401	288.5	278.6	461	331.6		521	374.8	361.9	581	417.9	403.6
42	245.3 246.0	237.6	02	289.2	278. 6 279. 3	62	332. 3	320. 2 320. 9	22	375. 5 376. 2	362.6	82	418. 7 419. 4	404.3
43	246.7	238.3	03	289.9	280.0	63	333.1	321.6	23	376.2	363.3	83	419.4	405.0
44	247.5	239. 0	04	290.6 291.3	280. 7 281. 3	64 65	333.8	322.3	$\frac{24}{25}$	376. 9 377. 7	364. 0	84	420. 1	405.7
45 46	$248.2 \\ 248.9$	239.7 240.4	05 06	291.3	$281.3 \\ 282.0$	66 66	$334.5 \\ 335.2$	$\begin{vmatrix} 323.0 \\ 323.7 \end{vmatrix}$	25 26	378.4	364. 7 365. 4	85 86	420.8	406. 4 407. 1
47	249.6	241.1	07	292. 1	282.7	67	335. 9	324. 4	27	379.1	366.1	87	421. 5 422. 3 423. 0 423. 7	407. 8
48	250.3	241.7	08	293.5	283. 4	68	336.7	325. 1	28	379.8	366.8	88	423.0	408.5
49	251.1	242.4	09	294. 2	284. 1	69	337.4	325.8	29	380.5	367.5	89	423.7	409.1
_50	251.8	243.1	10	294.9	284.8	70	338.1	326.5	30	381.2	368. 2	90	424.4	409.9
351	252.5	243.8	411	295.7	285.5	471	338.8	327. 2	531	382.0	368. 9	591	425.1	410.5
52	253.2 253.9	244. 5 245. 2		296.4 297.1	286. 2 286. 9	72 73	339. 5 340. 3	$\begin{vmatrix} 327.9 \\ 328.6 \end{vmatrix}$	32 33	382. 7 383. 4	$\begin{vmatrix} 369.6 \\ 370.3 \end{vmatrix}$		425. 9	411.2
53 54	254. 6	245. 2	13 14	297.1 297.8	280. 9	74	341.0	329.3	34	384.1	370.3	93 94	$426.6 \\ 427.3$	411.9 412.6
55	255. 4	246.6	15	298.5	288. 3	75	341.7	330. 0	35	384.8	371.7	95	428.0	413. 3
56	256.1	247.3	16	299.2	289.0	76	342.4	330.7	36	385.6	372.4	96	428.7	414.0
57	256.8	248.0	17	300.0	289.7	77	343.1	331.4	37	386.3	373.1	97	429.5	414.7
58	257.5	248.7	18	300.7	290.4	78	343.8	332.1	38	387. 0	373.7	98	430. 2	415.4
59 60	258.2 259.0	$\begin{vmatrix} 249.4 \\ 250.1 \end{vmatrix}$	19 20	$301.4 \\ 302.1$	$\begin{vmatrix} 291.1 \\ 291.8 \end{vmatrix}$	79 80	$344.6 \\ 345.3$	332. 7 333. 4	39 40	387. 7 388. 4	374.4	-99	430.9	416. 1 416. 8
00	200.0	200. 1	20	502. I	291.0	30	040.0	555.4	40	500.4	375.1	600	431.6	410.8
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
	P-			Pr									~ Jp.	
					4	160 /19	240 996	9149)					

46° (134°, 226°, 314°).

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TABLE 2.

Difference of Latitude and Departure for 45° (135°, 225°, 315°).

							- opero		(-	, ==	, 310	,·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
1	0. 7	0.7	61	43. 1	43. 1	121	85.6	85.6	181	128. 0	128.0	241	170.4	170.4
$\overline{2}$	1.4	1.4	62	43.8	43.8	22	86.3	86.3	82	128.7	128.7	42	171.1	171.1
3	2.1	2.1	63	44.5	44.5	23	87.0	87.0	83	129.4	129.4	43	171.8	171.8
4	2.8	2.8	64	45. 3	45.3	24	87.7	87.7	84	130.1	130.1	44	172.5	172.5
5	3.5	3.5	65	46. 0	46.0	25	88.4	88.4	85	130.8	130.8	45	173. 2	173.2
6	4. 2	4.2	66	46. 7	46.7	26	89.1	89.1	86	131.5	131.5	46	173.9	173.9
7	4.9	4.9	67	47.4	47.4	27	89.8	89.8	87	132. 2	132. 2	47	174.7	174.7
8	5.7	5. 7	68	48.1	48.1	28	90.5	90.5	88	132.9	132.9	48	175.4	175.4
9	6.4	6.4	69	48.8	48.8	29	91.2	91.2	89	133.6	133.6	49	176.1	176.1
10	$\frac{7.1}{2}$	$\frac{7.1}{7.0}$	70	49.5	49.5	30	91.9	91.9	90	134.4	134.4	50	176.8	176.8
11	7.8	7.8	71	50.2	50.2	131	92.6	92.6	191	135.1	135. 1	251	177.5	177.5
12	9. 2	$\begin{bmatrix} 8.5 \\ 9.2 \end{bmatrix}$	72	50.9	50.9 51.6	32	93.3	93.3	92	135.8	135. 8	52 53	178.2	178.2
$\begin{array}{c c} 13 \\ 14 \end{array}$	$9.2 \\ 9.9$	9. 9	73 74	$51.6 \\ 52.3$	52.3	$\frac{33}{34}$	94. 0	94. 0 94. 8	93 94	$136.5 \\ 137.2$	136. 5 137. 2	54	178. 9 179. 6	178. 9 179. 6
15	10.6	10.6	75	53.0	53. 0	35	95.5	95.5	95	137. 9	137. 2	55	180.3	180.3
16	11.3	11.3	76	53.7	53.7	36	96. 2	96.2	96	138.6	138.6	56	181.0	181.0
17	12.0	12.0	77	54. 4	54. 4	37	96. 9	96. 9	97	139.3	139.3	57	181.7	181.7
18	12. 7	12.7	78	$55.\hat{2}$	55. 2	38	97. 6	97.6	98	140.0	140. 0	58	182.4	182.4
19	13. 4	13. 4	79	55. 9	55. 9	39	98.3	98.3	99	140.7	140.7	59	183.1	183.1
20	14. 1	14.1	80	56.6	56.6	40	99.0	99.0	200	141.4	141.4	60	183.8	183.8
21	14.8	14.8	81	57.3	57.3	141	99.7	-99.7	201	142.1	142.1	261	184.6	184.6
22	15. 6	15.6	82	58. 0	58.0	42	100.4	100.4	02	142.8	142. 8	62	185. 3	185.3
23	16.3	16.3	83	58.7	58.7	43	101.1	101.1	03	143.5	143.5	63	186.0	186.0
24	17.0	17.0	84	59.4	59.4	44	101.8	101.8	04	144. 2	144. 2	64	186.7	186.7
25	17.7	17.7	85	60.1	60.1	45	102.5	102.5	05	145.0	145.0	65	187.4	187.4
26	18.4	18.4	86	60.8	60.8	46	103.2	103.2	06	145.7	145.7	66	188.1	188.1
27	19.1	19.1	87	61.5	61.5	47	103.9	103. 9	07	146. 4	146.4	67	188.8	188.8
28	19.8	19.8	88	62. 2	62. 2	48	104.7	104.7	08	147.1	147.1	68	189.5	189.5
29	20.5	20.5	89	62. 9	62. 9	49	105.4	105.4	09	147.8	147.8	69	190. 2	190.2
30	21. 2	21. 2	90	63.6	63.6	50	106.1	106.1	10	148.5	148.5	70	190.9	190.9
31	21.9	21.9	91	64.3	64.3	151	106.8	106.8	211	149. 2	149. 2	271	191.6	191.6
32	22.6	22.6	92	65. 1	65.1	52	107.5	107. 5	12	149.9	149.9	72	192.3	192.3
33	23. 3	23.3	93	65.8	65. 8 66. 5	53 54	108.2	108. 2 108. 9	13 14	150. 6 151. 3	150.6	73 74	193. 0 193. 7	193. 0 193. 7
34 35	$24.0 \\ 24.7$	$24.0 \\ 24.7$	94 95	$66.5 \\ 67.2$	67. 2	55	108. 9 109. 6	109.6	15	152.0	151. 3 152. 0	75	194.5	194.5
36	25.5	25. 5	96	67. 9	67. 9	56	110.3	110.3	16	152. 7	152.7	76	195. 2	195. 2
37	26. 2	26. 2	97	68.6	68.6	57	111.0	111.0	17	153.4	153.4	77	195. 9	195.9
38	26. 9	26. 9	98	69. 3	69.3	58	111.7	111.7	18	154.1	154. 1	78	196.6	196.6
39	27.6	27.6	99	70.0	70.0	59	112.4	112.4	19	154.9	154.9	79	197.3	197
40	28.3	28.3	100	70.7	70.7	60	113.1	113.1	20	155.6	155.6	80	198.0	198.0
41	29.0	29.0	101	71.4	71.4	161	113.8	113.8	221	156.3	156.3	281	198.7	198.7
42	29.7	29.7	02	72.1	72.1	62	114.6	114.6	22	157.0	157.0	82	199.4	199.4
43	30.4	30.4	03	72.8	72.8	63	115.3	115.3	23	157. 7	157.7	83	200.1	200.1
44	31.1	31.1	04	73.5	73.5	64	116.0	116.0	24	158.4	158.4	84	200.8	200.8
45	31.8	31.8	05	74. 2	74. 2	65	116.7	116.7	25	159.1	159.1	85	201.5	201.5
46	32.5	32.5	06	75.0	75.0	66	117.4	117.4	26	159.8	159.8	86	202.2	202.2
47	33. 2	33. 2	07	75.7	75.7	67	118.1	118.1	$\begin{array}{c} 27 \\ 28 \end{array}$	160.5	160.5	87	202.9	202.9
48	33. 9	33. 9	08	76.4	76.4	68	118.8	118.8	28	161.2	161.2	88	203.6	203.6
49	34.6	34.6	09	77.1	77.1	69	119.5	119.5 120.2	29	161.9	161.9	89	204. 4 205. 1	204. 4 205. 1
50	35.4	35.4	10	77.8	77.8	$\frac{70}{171}$	$\frac{120.2}{180.0}$		30	$\frac{162.6}{163.3}$	162.6	90		
51	36.1	36.1	111	78.5	78.5	$\frac{171}{72}$	120.9	120.9	231		163.3	$ \begin{array}{r} 291 \\ 92 \end{array} $	205. 8 206. 5	205. 8
52	36.8	36.8	12	79.2	79. 2 79. 9	73	$\begin{vmatrix} 121.6 \\ 122.3 \end{vmatrix}$	$\begin{vmatrix} 121.6 \\ 122.3 \end{vmatrix}$	32 33	164. 0 164. 8	164. 0 164. 8	93	206. 5	206. 5 207. 2
53 54	$37.5 \\ 38.2$	$\begin{vmatrix} 37.5 \\ 38.2 \end{vmatrix}$	13 14	79. 9 · 80. 6	80.6	74	123.0	123. 0	$\frac{55}{34}$	165.5	165. 5	94	207. 9	207. 9
55	38. 9	38. 9	15	81.3	81.3	75	123.0 123.7	123.0 123.7	35	166. 2	166. 2	95	208.6	208.6
56	39.6	39.6	16	82. 0	82.0	76	124.5	124.5	36	166. 9	166. 9	96	209.3	209.3
57	40. 3	40.3	17	82. 7	82.7	77	125. 2	125. 2	37	167. 6	167.6	97	210.0	210.0
58	41.0	41.0	18	83. 4	83. 4	78	125. 9	125. 9	38	168.3	168.3	98	210.7	210.7
59	41.7	41.7	19	84.1	84.1	79	126.6	126.6	39	169.0	169.0	99	211.4	211.4
60	42.4	42.4	20	84.9	84.9	80	127.3	127.3	40	169.7	169.7	300	212.1	212.1
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
·			-		1		950 995	0 0		1	,			·
						450 /1	950 005	0 9150	1					

45° (135°, 225°, 315°).

TABLE 2.

Difference of Latitude and Departure for 45° (135°, 225°, 315°).

			Diner	once or		ic and	Depuit		10 (100 , 22	, 010	·		
Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.	Dist.	Lat.	Dep.
301	212.8	212.8	361	255.3	255. 3	421	297.7	297.7	481	340.1	340.1	541	382.5	382.5
02^{10}	213.5	213.5	62	256.0	256. 0	22	298. 4	298. 4	82	340.8	340.8	42	383. 2	383.2
03	214.3	214. 3	63	256.7	256.7	23	299.1	299.1	83	341.5	341.5	43	383.9	383.9
04	215.0	215.0	64	257.4	257.4	24	299.8	299.8	84	342.2	342.2	44	384.7	384.7
05	215.7	215.7	65	258.1	258.1	25	300.5	300.5	85	342.9	342.9	45	385.4	385.4
06	216.4	216.4	66	258.8	258.8	26	301.2	301.2	86	343.6	343.6	46	386.1	386. 1
07	217. 1 217. 8 218. 5	217.1	67	259.5	259.5	27	301.9	301.9	87	344.3	344.3	47	386. 8 387. 5	386.8
08	217.8	217.8	68	260.2	260.2	28	302.6	302.6	88	345.1	345.1	48	387.5	387.5
09	218.5	218.5	69	260.9	260.9	29	303.4	303.4	89	345.8	345.8	49	388.2	388.2
10	219.2	219.2	70	261.6	261.6	30	304.1	304. 1	90	346.5	346.5	50	388.9	388.9
311	219.9	219.9	371	262.3	262.3	431	304.8	304.8	491	347. 2	347. 2	551	389.6	389.6
12	220.6 221.3	220.6	72	263.0	263. 0	32	305.5	305.5	92	347.9	347.9	52 53	390.3 391.0	390. 3 391. 0
13	221.3	221.3	73	263.8	263.8	33	306. 2	306. 2	$\frac{93}{94}$	$348.6 \\ 349.3$	348. 6 349. 3	54	201 7	391.7
14	222.0 222.7	$\begin{bmatrix} 222.0 \\ 222.7 \end{bmatrix}$	74	$264.5 \\ 265.2$	$264.5 \\ 265.2$	34 35	306.9 307.6	306. 9 307. 6	95	350.0	350.0	55	391. 7 392. 4	392. 4
15 16	222.7 223.4	223. 4	75 76	265.2 265.9	265. 9	36	308.3	308.3	96	350.7	350.7	56	393. 1	393. 1
17	223.4 224.2	224. 2	77	266.6	266. 6	37	309.0	309.0	97	351.4	351.4	57	393. 9	393. 9
18	224. 9	224. 9	78	267. 3	267.3	38	309.7	309.7	98	352.1	352.1	58	$393.9 \\ 394.6$	394.6
19	225.6	225. 6	79	268.0	268.0	39	310.4	310. 4	99	352.8	352.8	59	395.3	395.3
20	226.3	226.3	80	268.7	268.7	40	311.1	311.1	500	353. 5	353.5	60	396.0	396.0
321	227.0	227.0	381	269.4	269.4	441	311.8	311.8	501	354.3	354.3	561	396.7	396.7
22	227.7	227.7	82	270.1	270.1	42	312.5	312.5	02	355.0	355.0	62	397.4	397.4
23	228.4	228.4	83	270.8	270.8	43	313.3	313.3	03	355.7	355.7	63	398.1	398.1
24	229.1	229.1	84	271.5	271.5	44	314.0	314.0	04	356.4	356.4	64	398.8	398.8
25	229.8	229.8	85	272.2	272.2	45	314. 7	314. 7	05	357.1	357.1	65	399.5	399.5
26	230.5	230.5	86	272.9	272.9	46	315.4	315. 4	06	357.8	357.8	66	400. 2	400.2
27	231.2	231. 2	87	273.7	273.7	47	316.1	316.1	07	$358.5 \\ 359.2$	358.5	67	400.9	400.9
28	231. 9	231. 9	88	274.4	274. 4	48	316.8	316.8	08	359. 2	359. 2 359. 9	68 69	401.6	$401.6 \\ 402.3$
29	232.6 233.3	232.6	89 90	$275.1 \\ 275.8$	$\begin{vmatrix} 275.1 \\ 275.8 \end{vmatrix}$	49 50	317. 5 318. 2	$\begin{vmatrix} 317.5 \\ 318.2 \end{vmatrix}$	09 10	360.6	360.6	70	403.0	403.0
30		233. 3		$\frac{276.8}{276.5}$	$\frac{276.8}{276.5}$	451	318.9	$\frac{318.2}{318.9}$	$\frac{10}{511}$	361.3	361.3	$\frac{70}{571}$	403.8	403.8
331 32	234. 1 234. 8	234.1 234.8	$\frac{391}{92}$	$276.5 \\ 277.2$	270.0	52	319.6	319.6	12	362.0	362.0	$\frac{371}{72}$	404.5	404.5
33	235.5	235. 5	93	$\frac{277.2}{277.9}$	$277.2 \\ 277.9$	53	320.3	320.3	13	362.7	362.7	73	405. 2	405. 2
34	236. 2	236. 2	94	278.6	278.6	54	321.0	321.0	14	362. 7 363. 5	363. 5	74	405.9	405. 9
35	236. 9	236. 9	95	279.3	279.3	55	321.7	321.7	15	364. 2	364. 2	75	406.6	406.6
36	237.6	237. 6	96	280.0	280.0	56	322.4	322.4	16	364.9	364.9	76	407.3	407.3
37	238.3	238.3	97	280.7	280.7	57	323. 2	323. 2	17	365.6	365.6	77	408.0	408.0
38	239.0	239.0	98	281.4	281.4	58	323.9	323.9	18	366.3	366.3	78	408.7	408.7
39	239.7	239.7	99	282.1	282.1	59	324.6	324.6	19	367.0	367.0	79	409.4	409.4
40	240.4	240.4	400	282.8	282.8	60	325.3	325.3	20	367.7	367.7	80_	410.1	410.1
341	241.1	241.1	401	283.6	283.6	461	326.0	326.0	521	368. 4	368.4	581	410.8	410.8
.42	241.8	$241.8 \\ 242.5$	02	284.3	284.3	62	326.7	326. 7	22	369.1 369.8	369.1	82	411.5	411.5
43	242.5	242.5	03	285.0	285.0	63	327.4	327.4	23	369.8	369.8	83	412. 2 412. 9	412. 2 412. 9
44	243. 2	243. 2	04	285.7	285.7	64	328.1	328.1	24	370.5	370.5	84	412.9	412.9
45	244.0	244.0	05	286.4	286.4	65 66	328.8 329.5	$\begin{vmatrix} 328.8 \\ 329.5 \end{vmatrix}$	$\frac{25}{26}$	370. 5 371. 2 371. 9	371. 2 371. 9	85	413. 7 414. 4	413.7
46 47	244. 7 245. 4	$\begin{vmatrix} 244.7 \\ 245.4 \end{vmatrix}$	06 07	287. 1 287. 8	$\begin{vmatrix} 287.1 \\ 287.8 \end{vmatrix}$	66 67	330. 2	$\begin{vmatrix} 329.5 \\ 330.2 \end{vmatrix}$	$\frac{20}{27}$	372.6	372.6	87	415.1	415.1
48	246.1	246. 1	08	288.5	288.5	68	330.9	330. 9	28	373.4	373.4	88	415.8	415. 8
49	246. 8	246.8	09	289.2	289. 2	69	331.6	331.6	29	374.1	374.1	89	416.5	416.5
50	247.5	247.5	10	289.9	289. 9	70	332.3	332.3	30	374.8	374.8	90	417.2	417. 2
351	248. 2	248. 2	411	290.6	290.6	471	333.1	333.1	531	375.5	375.5	591	417.9	417.9
52	248. 9	248. 9		291.3	291.3	$7\overline{2}$	333.8	333.8		376.2	376. 2	92	418.6	418.6
53	249.6	249.6	13	292.0	292.0	73	334.5	334.5	33	376.9	376.9	93	419.3	419.3
54	250.3	250.3	14	292.7	292.7	74	335. 2	335.2	34	377.6	377.6	94	420.0	420.0
55	251.0	251.0	15	293.5	293.5	75	335.9	335. 9	35	378.3	378.3	95	420.7	420.7
56	251.7	251.7	16	294. 2	294.2	76	336.6	336.6		379.0	379.0	96	421.4	421.4
57	252.4	252.4		294. 9	294.9	77	337.3	337.3		379.7	379.7	97	422.1	422.1
58	253.1	253.1	18	295.6	295.6	78	338.0	338. 0		380. 4	380.4	98	422.8	422. 8 423. 6
59	253.9	253.9	19	296.3	296.3	79	338.7	338.7	39	381.1	381.1	99	423. 6 424. 3	423.6
60	254.6	254.6	20	297.0	297.0	80	339.4	339.4	40	301.8	301.8	600	124.0	124.0
Diet	Dan	Tat	Dist	Don	Lat	Diet	Don	Tot	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.
Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	Lat.	Dist.	Dep.	lat.	Dist.	Dep.	Lat.
1														

45° (135°, 225°, 315°).

Meridional Parts, or Increased Latitudes.

	1 00	1 10	1 00	1 00	1 40	1 -0	60	70	80	90	3.5
M.	00	10	20	30	40	50	60	70	80		М.
0	0.0	59.6	119. 2	178.9	238.6	298.3	358. 2	418. 2	478.3	538, 6	0
1	1.0	60.6	20. 2	79. 9	39.6	99.3	59. 2	19. 2	79.3	39.6	1
$\hat{2}$	2.0	61.6	21. 2	80.8	40.6	300.3	60. 2	20. 2	80.3	40.6	2
3	3.0	62.6	22, 2	81.8	41.6	01.3	61. 2	21. 2	81.3	41.6	3
4	4.0	63.6	23. 2	82.8	42.5	02.3	62. 2	22.2	82.3	42.6	4
5	5.0	64.6	124. 2	183.8	243.5	303.3	363.2	423. 2	483.3	543.6	5
6	6.0	65. 6	25. 2	84.8	44.5	04.3	64. 2	24. 2	84.3	44.6	6
7	7.0	66. 5	26. 2	85.8	45.5	05.3	65. 2	25. 2	85.3	45.6	7 8
8 9	7. 9 8. 9	67. 5 68. 5	$27.2 \\ 28.2$	86. 8 87. 8	46. 5 47. 5	06. 3 07. 3	66. 2 67. 2	$26.2 \\ 27.2$	86. 3 87. 3	$46.6 \\ 47.6$	9
10	9.9	$\frac{69.5}{69.5}$	$\frac{20.2}{129.1}$	188.8	248.5	308.3	368. 2	428. 2	488.3	548.6	10
11	10.9	70.5	30.1	89.8	49.5	09.3	69. 2	29. 2	89.3	49.6	11
$\hat{12}$	11. 9	71.5	31. 1	90.8	50.5	10. 3	70. 2	30. 2	90.4	50.6	12
13	12.9	72.5	32. 1	91.8	51.5	11.3	71.2	31.2	91.4	51. 7	13
14	13.9	73.5	33.1	92.8	52.5	12.3	72.2	32.2	92.4	52.7	14
15	14.9	74.5	134.1	193. 8	253. 5	313.3	373. 2	433. 2	493. 4	553. 7	15
16	15.9	75.5	35.1	94.8	54.5	14.3	74. 2	34. 2	94.4	54.7	16 17
17 18	16. 9 17. 9	76. 5 77. 5	36. 1 37. 1	95. 8 96. 8	55. 5 56. 5	15. 3 16. 3	75. 2 76. 2	35. 2 36. 2	95. 4 96. 4	55. 7 56. 7	18
19	18.9	78.5	38.1	97.8	57.5	17.3	77. 2	37. 2	97.4	57. 7	19
20	19. 9	79.5	139.1	198. 8	258.5	318.3	378. 2	438. 2	498. 4	558.7	20
$2\overset{\circ}{1}$	20. 9	80.5	40. 1	99. 7	59.5	19. 3	79. 2	39. 2	99. 4	59. 7	21
22	21.9	81.5	41.1	200.7	60.5	20.3	80. 2	40. 2	500.4	60. 7	22
23	22.8	82.4	42. 1	01.7	61.5	21.3	81.2	41. 2	01.4	61. 7	23
24	23.8	83.4	43.1	02.7	62. 5	22.3	82. 2	42. 2	02.4	62.7	24
25	24.8	84.4	144.1	203. 7	263. 5	323.3	383. 2	443. 2	503. 4	563. 7	25
$\begin{array}{c} 26 \\ 27 \end{array}$	25. 8 26. 8	85. 4 86. 4	45. 1 46. 0	$04.7 \\ 05.7$	64. 5 65. 5	24. 3 25. 3	84. 2 85. 2	44.2 45.2	04. 4 05. 4	64. 7 65. 7	26 27
28	27.8	87.4	47. 0	06.7	66.5	26.3	86.2	46. 2	06.4	66.8	28
29	28.8	88. 4	48.0	07. 7	67.4	27.3	87. 2	47. 2	07. 4	67.8	29
30	29.8	89.4	149.0	208.7	268.4	328. 3	388. 2	448. 2	508.4	568. 8	30
31	30.8	90. 4	50.0	09.7	69.4	29. 3	89. 2	49. 2	09.4	69.8	31
32	31.8	91.4	51.0	10. 7	70.4	30.3	90. 2	50. 2	10.4	70.8	32
33 34	32. 8 33. 8	92.4	52. 0 53. 0	$11.7 \\ 12.7$	71. 4 72. 4	31. 3 32. 3	$91.2 \\ 92.2$	51. 2 52. 2	11.4 12.4	71. 8 72. 8	33 34
35	34.8	$\frac{93.4}{94.4}$	154.0	$\frac{12.7}{213.7}$	273.4	333.3	$\frac{92.2}{393.2}$	$\frac{52.2}{453.2}$	$\frac{12.4}{513.4}$	573.8	35
36	35.8	95.4	55.0	14.7	74.4	34.3	94. 2	54.3	14.5	74.8	36
37	36.7	96.4	56.0	15. 7	75. 4	35.3	95. 2	55. 3	15. 5	75. 8	37
38	37.7	97.3	57.0	16.7	76.4	36. 2	96. 2	56. 3	16.5	76.8	38
39	38.7	98.3	58.0	17.7	77.4	37. 2	97. 2	57.3	17.5	77.8	39
40	39.7	99.3	159.0	218. 7	278.4	338. 2	398.2	458.3	518.5	578.8	40
41	40.7	100.3	60.0	19.7	79.4	39. 2	99. 2	59.3	19.5	79.9	41
42 43	41.7 42.7	$01.3 \\ 02.3$	61. 0 62. 0	20. 6 21. 6	80. 4 81. 4	40. 2 41. 2	400. 2 01. 2	60. 3 61. 3	$20.5 \\ 21.5$	80. 9 81. 9	42 43
44	43.7	03.3	63.0	22.6	82. 4	42. 2	01. 2	62. 3	$\frac{21.5}{22.5}$	82. 9	44
45	44.7	$\frac{-00.3}{104.3}$	164.0	223.6	283. 4	343. 2	$\frac{-02.2}{403.2}$	463.3	523.5	583. 9	45
46	45.7	05.3	65.0	24.6	84. 4	44. 2	04. 2	64.3	24.5	84. 9	46
47	46.7	06.3	66.0	25.6	85. 4	45. 2	05. 2	65.3	25.5	85.9	47
48	47.7	07.3	67.0	26.6	86. 4	46. 2	06. 2	66. 3	26. 5	86. 9	48
49	48.7	08.3	68.0	27.6	87.4	47.2	07.2	67.3	27.5	87.9	49
50	49.7	109.3	168. 9	228. 6 29. 6	288. 4	348. 2	408. 2	468.3	528.5	588. 9	50
51 52	50. 7 51. 6	10. 3 11. 3	69. 9 70. 9	29. 6 30. 6	89. 4 90. 4	49. 2 50. 2	09. 2 10. 2	69. 3 70. 3	29. 5 30. 5	89. 9 90. 9	51 52
53	52.6	12.3	71.9	31.6	91.4	51. 2	11. 2	70.3	31.5	91. 9	53
54	53.6	13.2	72.9	32.6	92. 4	52. 2	12. 2	72. 3	32. 5	93. 0	54
55	54.6	114.2	173.9	233.6	293.4	353. 2	413. 2	473.3	533.5	594.0	55
56	55.6	15. 2	74.9	34.6	94.4	54.2	14.2	74.3	34.6	95.0	56
57	56.6	16.2	75.9	35.6	95.4	55. 2	15. 2	75.3	35.6	96.0	57
58 59	57.6	17.2	76.9	36.6	96.3	56. 2	16. 2	76.3	36.6	97.0	58
99	58.6	18. 2	77.9	37.6	97. 3	57. 2	17. 2	77.3	37.6	98.0	59
M.	00	10	20	80	40	50	60	70	80	90	М.

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TABLE 3.

Meridional Parts, or Increased Latitudes.

Comp. $\frac{1}{\overline{293.465}}$

M.	10°	110	120	13°	140	15°	16°	17°	180	19°	M.
-	200.0	050 C	720, 5	701 5	0.49.0	004.4	000.0				
		659. 6 60. 6	21.5	$781.5 \\ 82.5$	842. 8 43. 9	904. 4 05. 4	966. 3 67. 3	1028.5 29.5	1091. 0 92. 0	1153. 9 54. 9	$\begin{array}{c c} 0 \\ 1 \end{array}$
1 2	01.0	61.7	22.5	83.6	44.9	06.5	68.3	30.5	93. 1	56.0	2
1 8		62.7	23.5	84.6	45.9	07.5	69. 4	31.6	94.1	57.0	3
4		63.7	24.5	85. 6	46.9	08.5	70.4	32.6	95. 2	58.1	4
- 6		664. 7 65. 7	725. 5 26. 6	786. 6 87. 6	847. 9 49. 0	909. 6 10. 6	971. 4 72. 5	1033. 7 34. 7	1096. 2	1159.1	5
7		66.7	27.6	88.7	50.0	11.6	73.5	35. 7	97. 3 98. 3	60. 2 61. 2	- 6
8	07.1	67.7	28.6	89.7	51.0	12.6	74.6	36.8	99.4	62. 3	8
- 6	_	68.7	29.6	90.7	52.0	13.7	75.6	37.8	1100.4	63.3	9
10		669. 8 70. 8	730. 6 31. 6	791. 7 92. 7	853.1	914. 7	976.6	1038.9	1101.4	1164.4	10
12		71.8	32. 7	93.8	54.1 55.1	15.7 16.8	77. 7 78. 7	39. 9 40. 9	$02.5 \\ 03.5$	65. 4 66. 5	11 12
13	12.1	72.8	33.7	94.8	56.1	17.8	79. 7	42.0	04.6	67.5	13
14	13.1	73.8	34.7	95.8	57.2	18.8	80.8	43.0	05.6	68.6	14
15		674.8	735.7	796. 8	858. 2	919.8	981.8	1044.1	1106.7	1169. 7	15
$\frac{16}{17}$	$\frac{15.2}{16.2}$	75. 8 76. 8	$ \begin{array}{c c} 36.7 \\ 37.7 \end{array} $	97. 8 98. 9	59. 2 60. 2	20.9 21.9	82. 8 83. 9	45. 1 46. 1	07. 7 08. 8	70. 7 71. 8	16 17
18	17. 2	77.9	38.8	99. 9	61.3	$\frac{21.3}{22.9}$	84.9	47. 2	09.8	72.8	18
19	18.2	78.9	39.8	800.9	62.3	24.0	85.9	48. 2	10.9	73.9	19
$\frac{20}{21}$	619. 2	679.9	740.8	801. 9	863. 3	925. 0	987.0	1049.3	1111.9	1174.9	20
22		80. 9 81. 9	41.8 42.8	02. 9 04. 0	64. 3 65. 4	26.0 27.1	88. 0 89. 0	50. 3 51. 3	13. 0 14. 0	76. 0 77. 0	$\begin{array}{ c c }\hline 21\\22\\ \end{array}$
23	22.2	82.9	43.8	05.0	66. 4	28. 1	90.1	52. 4	15.0	78.1	23
24		83.9	44.9	06.0	67.4	29.1	91.1	53.4	16.1	79.1	24
25	624. 2	684. 9	745. 9	807.0	868.5	930. 1	992. 1	1054.5	1117.1	1180. 2	25
$\frac{26}{27}$	25. 3 26. 3	86. 0 87. 0	46. 9 47. 9	08. 1 09. 1	69.5 70.5	$\frac{31.2}{32.2}$	93.2 94.2	55. 5 56. 6	18. 2 19. 2	81. 2 82. 3	26 27
28	27. 3	88.0	48.9	10. 1	70.5	$32.2 \\ 33.2$	95.3	57.6	20.3	83.3	28
29	28.3	89.0	49.9	11.1	72.6	34.3	96.3	58.6	21. 3	84.4	29
30		690.0	751.0	812. 1	873.6	935. 3	997.3	1059.7	1122.4	1185.5	30
$\frac{31}{32}$		91. 0 92. 0	52. 0 53. 0	13. 2 14. 2	$74.6 \\ 75.6$	$36.3 \\ 37.4$	98. 4 99. 4	60. 7 61. 8	23.4	86. 5 87. 6	$\begin{array}{c c} 31 \\ 32 \end{array}$
33	32.3	93. 1	54.0	15. 2	76. 7	38. 4	1000. 4	62.8	$24.5 \\ 25.5$	88.6	33
34	33. 3	94.1	55. 0	16. 2	77.7	39. 4	01.5	63.9	26.6	89.7	34
35	634.3	695. 1	756.0	817.3	878.7	940.5	1002.5	1064.9	1127.6	1190.7	35
$\frac{36}{37}$		96. 1 97. 1	57. 1 58. 1	18.3 19.3	79. 7 80. 8	$41.5 \\ 42.5$	03.6 04.6	65. 9	$ \begin{array}{c} 28.7 \\ 29.7 \end{array} $	91.8	36
38		98.1	59. 1	20.3	81.8	42. 5	05.6	67. 0 68. 0	30.8	92. 8 93. 9	37 38
39		99.1	60. 1	21.3	82. 8	44.6	06.7	69. 1	31.8	95.0	39
40		700. 2	761.1	822.4	883.8	945.6	1007.7	1070.1	1132.9	1196.0	40
41		01. 2	62. 2	23.4	84.9	46.7	08.7	71. 2	33.9	97.1	41
42 43		02. 2 03. 2	63. 2 64. 2	$ \begin{array}{c c} 24.4 \\ 25.4 \end{array} $	85. 9 86. 9	47.7 48.7	09.8 10.8	72. 2 73. 2	35. 0 36. 0	98. 1 99. 2	42 43
44		04. 2	65. 2	26. 5	88. 0	49.7	11.8	74. 3	37.1	1200.2	44
45		705. 2	766. 2	827.5	889.0	950.8	1012.9	1075.3	1138.1	1201.3	45
46		06.2	67.3	28.5	90.0	51.8	13.9	76.4	39.2	02.3	46
47 48		07. 3 08. 3	68. 3 69. 3	29. 5 30. 5	$91.0 \\ 92.1$	52. 8 53. 9	15. 0 16. 0	77. 4 78. 5	40. 2 41. 3	03. 4 04. 5	47
49		09. 3	70.3	31.6	93. 1	54. 9	17.0	79.5	42.3	05.5	49
50	649.5	710.3	771.3	832.6	894.1	955.9	1018.1	1080.5	1143.4	1206.6	50
51		11.3	72.3	33. 6	95. 2	57.0	19.1	81.6	44.4	07.6	51
52 53		12. 3 13. 4	73.4 74.4	34. 6 35. 7	96. 2 97. 2	58. 0 59. 0	20.2 21.2	82. 6 83. 7	45. 5 46. 5	08. 7 09. 7	52 53
54		14. 4	75. 4	36.7	98.2	60. 1	22. 2	84.7	47.6	10.8	54
55	654.6	715.4	776.4	837.7	899.3	961.1	1023.3	1085.8	1148.6	1211.8	55
56		16.4	77.4	38.7	900.3	62. 1	24.3	86. 8	49.7	12.9	56
57 58		17.4 18.4	78. 5 79. 5	39. 8 40. 8	01. 3 02. 3	63.2 64.2	25. 3 26. 4	87. 9 88. 9	50. 7 51. 8	14. 0 15. 0	57 58
59		19.4	80.5	41.8	03.4	65. 2	27.4	89. 9	52.8	16.1	59
	100	110	120	13°	140	150	160	170			
M.									180	190	M.

Meridional Parts, or Increased Latitudes.

		1	· · · · · ·			293.400					
M.	200	210	220	230	240	25°	260	270	280	290	М.
0	1217.1	1280.8	1344.9	1409.5	1474.5	1540.1	1606. 2	1672.9	1740.2	1808.1	0
1	18.2	81.9	46.0	10.6	75.6	41.2	07.3	74.0	41.3	09. 2	1
2	19.3	82.9	47.1	11.6	76.7	42.3	08.4	75.1	42.4	10.4	2
3 4	$\begin{array}{c c} 20.3 \\ 21.4 \end{array}$	84. 0 85. 1	48.1	12. 7 13. 8	77. 8 78. 9	43. 4 44. 5	09. 5 10. 6	76. 2 77. 4	43. 6 44. 7	11.5 12.6	3 4
5	$\frac{21.4}{1222.4}$	$\frac{65.1}{1286.1}$	1350.3	1414.9	1480.0	1545.6	1611.7	1678.5	1745.8	1813.8	5
6	23.5	87. 2	51.4	16.0	81.1	46.7	12.9	79.6	46. 9	14.9	6
7	24.5	88.3	52.4	17. 1	82. 2	47.8	14.0	80.7	48.1	16.1	7
8	25.6	89. 3	53.5	18.1	83. 3	48.9	15.1	81.8	49.2	17. 2	8
9	26.7	90.4	54.6	19.2	84.3	50.0	16.2	82.9	50.3	18.3	9
10 11	1227.7 28.8	$1291.5 \\ 92.5$	1355. 7 56. 7	1420.3 21.4	1485. 4 86. 5	1551. 1 52. 2	1617.3 18.4	1684. 1 85. 2	1751. 5 52. 6	1819. 5 20. 6	10
$\frac{11}{12}$	29.8	93.6	57.8	$\frac{21.4}{22.5}$	87.6	53.3	19.5	86.3	53.7	21.8	$\begin{array}{c c} 11 \\ 12 \end{array}$
13	30.9	94.7	58.9	23.5	88.7	54.4	20.6	87.4	54.8	22. 9	13
14	32.0	95.7	59.9	24.6	89.8	55. 5	21.7	88.5	56.0	24.0	- 14
15	1233.0	1296.8	1361.0	1425.7	1490.9	1556.6	1622.8	1689.7	1757.1	1825. 2	15
16	34.1	97.9	62. 1 63. 2	26.8	92.0	57.7	23.9	90.8	58.2	26.3	16
17 18	35. 1 36. 2	98. 9 1300. 0	63.2	27.9 29.0	93. 1 94. 2	58.8 59.9	25. 0 26. 2	91. 9 93. 0	59. 4 60. 5	27. 5 28. 6	17 18
19	37.3	01.1	65. 3	30.0	95. 2	61.0	27.3	94.1	61.6	29.7	19
20	1238.3	1302.1	1366.4	1431.1	1496.3	1562.1	1628. 4	1695. 3	1762.7	1830. 9	20
21	39.4	03. 2	67.5	32. 2	97.4	63. 2	29.5	96.4	63.9	32.0	21
22	40.4	04.3	68.5	33.3	98.5	64.3	30.6	97.5	65.0	33.2	22
23 24	41.5 42.6	05. 3 06. 4	69. 6 70. 7	$34.4 \\ 35.4$	99. 6 1500. 7	65. 4 66. 5	$ \begin{array}{c c} 31.7 \\ 32.8 \end{array} $	98. 6 99. 7	66. 1 67. 3	34. 3 35. 4	23 24
$\frac{21}{25}$	1243.6	1307.5	1371.8	1436.5	1501.8	1567.6	1633.9	1700.9	1768.4	1836.6	25
26	44.7	08.5	72.8	37.6	02.9	68.7	35.0	02.0	69.5	37.7	26
27	45.7	09.6	73.9	38.7	04.0	69.8	36.1	03.1	70.7	38.9	27
28 29	46.8 47.9	10.7	75.0	39.8	05.1	70.9	37.3	04.2	71.8	40.0	28
30	$\frac{47.9}{1248.9}$	$\frac{11.7}{1312.8}$	$\frac{76.1}{1377.1}$	$\frac{40.9}{1442.0}$	06. 2	$\frac{72.0}{1573.1}$	38.4	05.3	72.9	41.2	29
31	50.0	13.9	78.2	43.0	1507. 3 08. 4	74. 2	1639. 5 40. 6	1706. 5 07. 6	$1774.1 \\ 75.2$	1842. 3 43. 4	30 31
32	51.0	14.9	79.3	44.1	09.4	75. 3	41.7	08.7	76.3	44.6	32
33	52.1	16.0	80.4	45.2	10.5	76.4	42.8	09.8	77.4	45.7	33
34	53. 2	17.1	81.5	46.3	11.6	77.5	43.9	10.9	78.6	46.9	34
35 36	1254. 2 55. 3	1318. 2 19. 2	1382. 5 83. 6	$1447.4 \\ 48.5$	1512. 7 13. 8	1578.6	1645. 0	1712.1	1779.7	1848.0	35
37	56. 4	20.3	84.7	49.5	14.9	79. 7 80. 8	$46.2 \\ 47.3$	13. 2 14. 3	80. 8 82. 0	49. 2 50. 3	36 37
38	57.4	21.4	85.8	50.6	16.0	81.9	48.4	15. 4	83. 1	51.4	38
39	58.5	22.4	86.8	51.7	17.1	83.0	49.5	16.6	84. 2	52.6	39
40	1259.5	1323.5	1387. 9	1452.8	1518.2	1584.1	1650.6	1717.7	1785.4	1853.7	40
41 42	60.6 61.7	$24.6 \\ 25.6$	89.0	53.9	19.3	85.2	51.7	18.8	86.5	54.9	41
42	62.7	26.7	90. 1 91. 1	55. 0 56. 1	20.4 21.5	86.3 87.4	52. 8 53. 9	19. 9 21. 1	87. 6 88. 8	56.0 57.2	42 43
44	63. 8	27.8	92.2	57. 1	22.6	88.5	55. 1	$\frac{21.1}{22.2}$	89.9	58.3	44
45	1264.9	1328.9	1393.3	1458.2	1523.7	1589.6	1656.2	1723. 3	1791.1	1859.5	45
46	65. 9	29.9	94.4	59.3	24.8	90.7	57.3	24.4	92.2	60.6	46
47 48	67. 0 68. 0	31.0	95. 5 96. 5	60.4	25. 9	91.8	58.4	25. 5	93. 3	61.8	47
48	69.1	$ \begin{array}{c} 32.1 \\ 33.1 \end{array} $	96. 5	61.5 62.6	27. 0 28. 0	92. 9 94. 1	59. 5 60. 6	$26.7 \\ 27.8$	94. 5 95. 6	62. 9 64. 0	48 49
50	1270. 2	1334.2	1398.7	1463.7	$\frac{26.0}{1529.1}$	1595. 2	1661.7	$\frac{21.8}{1728.9}$	1796. 7	1865. 2	50
51	71.2	35.3	99.8	64.8	30. 2	96.3	62.9	30.0	97.9	66. 3	51
52	72.3	36.3	1400.9	65.8	31. 3	97.4	64.0	31.2	99.0	67.5	52
53 54	73. 4 74. 4	37. 4 38. 5	01. 9 03. 0	66.9	32.4	98.5	65.1	32.3	1800.1	68.6	53
$\frac{54}{55}$	$\frac{74.4}{1275.5}$	1339.6	1404.1	$\frac{68.0}{1469.1}$	$\frac{33.5}{1534.6}$	$\frac{99.6}{1600.7}$	$\frac{66.2}{1667.3}$	33.4	01.3	69.8	54
56	76.6	40.6	05. 2	70. 2	35.7	01.8	68.4	1734. 5 35. 7	1802. 4 03. 5	1870. 9 72. 1	55 56
57	77.6	41.7	06.2	71.3	36.8	02. 9	69.5	36.8	04.7	73. 2	57
58	78.7	42.8	07.3	72.4	37.9	04.0	70.7	37.9	05.8	74.4	58
59	79. 7.	43.8	08.4	73.5	39.0	05.1	71.8	39.1	07.0	75.5	59
М.	200	210	220	230	240	250	260	270	280	290	М.

Meridional Parts, or Increased Latitudes.

M.	30°	31°	320	330	34°	35°	36°	370	380	390	М.
0	1876. 7	1946. 0	2016. 0	2086. 8	2158, 4	2230. 9	2304. 2	2378.5	2453.8	2530. 2	0
ĺ	77.8	47.1	17.2	88.0	59.6	32.1	05.5	79.8	55.1	31. 5	1
2	79.0	48.3	18.3	89. 2	60.8	33.3	06.7	81.0	56.4	32.8	2
3	80.1	49.4	19.5	90. 3	62.0	34.5	07. 9	82.3	57.6	34.0	3 4
4	81.3	$\frac{50.6}{1951.8}$	$\frac{20.7}{2021.9}$	91.5	63. 2	35.7	$\frac{09.2}{2310.4}$	83.5	58.9	35. 3° 2536. 6	$\frac{4}{5}$
5 6	1882. 4 83. 6	52.9	2021. 9	2092. 7 93. 9	2164. 4 65. 6	2236. 9 38. 2	11.6	2384. 8 86. 0	2460. 2 61. 4	2536. 6 37. 9	6
7	84. 7	54.1	24. 2	95.1	66.8	39. 4	12.9	87.3	62. 7	39. 2	7
8	85. 9	55.3	25.4	96.3	68.0	40.6	14.1	88.5	64.0	40.5	8
9	87.0	56.4	26.6	97.5	69. 2	41.8	15. 3	89.8	65. 2	41.7	9
10	1888. 2	1957.6	2027. 7	2098.7	2170.4	2243.0	2316.5	2391.0	2466.5	2543.0	10
11	89.3	58.7	28. 9	99.8	71.6	44. 2	17.8	92.3	67.8	44.3	11
$\begin{array}{c c} 12 \\ 13 \end{array}$	90. 5 91. 6	59. 9 61. 1	30. 1 31. 3	$2101.0 \\ 02.2$	72.8 74.0	45. 5 46. 7	19. 0 20. 3	93. 5 94. 8	69. 0 70. 3	45. 6 46. 9	12 13
14	92.8	62. 2	32. 4	03.4	75. 2	47.9	21.5	96.0	71.6	48. 2	14
15	1893.9	1963.4	2033. 6	2104.6	2176.4	2249. 1	2322.7	2397. 3	2472.8	2549.5	15
16	95.1	64.6	34.8	05.8	77.6	50. 3	24.0	98.5	74. 1	50.7	16
17	96. 2	65.7	36.0	07.0	78.8	51.6	25. 2	99.8	75.4	52.0	17
18	97.4	66. 9	37. 1	08.2	80.0	52.8	26.4	2401.0	76.6	53. 3	18
19	98.5	68. 1	38.3	09.4	81.2	54.0	27.7	02.3	77.9	54.6	19
20	1899. 7	1969. 2	2039. 5	2110.6	2182.5	2255. 2	2328.9	2403.5	2479. 2	2555. 9	20
$\begin{array}{c c} 21 \\ 22 \end{array}$	1900. 8 02. 0	70. 4 71. 5	40.7 41.8	11. 8 12. 9	83. 7 84. 9	56. 4 57. 7	30. 1 31. 4	04. 8 06. 0	80. 4 81. 7	57. 2 58. 5	21
23	03.1	72.7	43.0	14.1	86.1	58.9	32.6	07.3	83. 0	59.8	22 23
24	04. 3	73.9	44. 2	15.3	87.3	60.1	33.8	08.5	84. 3	61.0	24
25	1905.5	1975.0	2045. 4	2116.5	2188.5	2261.3	2335.1	2409.8	2485.5	2562.3	25
26	06.6	76. 2	46.6	17.7	89.7	62.5	36.3	11.1	86.8	63.6	26
27	07.8	77.4	47.7	18.9	90.9	63.8	37.6	12.3	88.1	64. 9	27-
28 29	08. 9 10. 1	78. 5 79. 7	48. 9 50. 1	20.1 21.3	92.1	65. 0 66. 2	38. 8 40. 0	13.6 14.8	89. 3 90. 6	66. 2 67. 5	$\frac{28}{29}$
30	1911. 2	1980. 9	2051. 3	$\frac{21.3}{2122.5}$	93.3 2194.5	$\frac{66.2}{2267.4}$	2341.3	2416. 1	2491.9	2568.8	$\frac{29}{30}$
31	12. 4	82.0	52.5	23.7	95.7	68.7	42.5	17. 3	93. 2	70.1	31
32	13. 5	83. 2	53.6	24. 9	96.9	69.9	43. 7	18.6	94.4	71.4	32
33	14.7	84.4	54.8	26.1	98.1	71.1	45.0	19.8	95. 7	72. 7	33
34	15.8	85.5	56.0	27.3	99.4	72.3	46.2	21.1	97.0	73.9	34
35	1917.0	1986.7	2057. 2	2128.5	2200.6	2273.5	2347.5	2422.3	2498.3	2575. 2	35
36 37	18. 2 19. 3	87. 9 89. 1	58. 4 59. 5	29. 6 30. 8	01.8	74.8	48. 7 49. 9	23. 6 24. 9	99. 5 2500. 8	76. 5 77. 8	36 37
38	20.5	90. 2	60.7	32.0	03. 0 04. 2	76. 0 77. 2	51. 2	26. 1	02. 1	79.1	38
39	21.6	91.4	61. 9	33. 2	05. 4	78. 4	52. 4	27.4	03. 4	80.4	39
40	1922.8	1992.6	2063. 1	2134.4	2206.6	2279.7	2353.7	2428.6	2504.6	2581.7	40
41	23. 9	93. 7	64.3	.35. 6	07.8	80.9	54. 9	29. 9	05. 9	83.0	41
42	25.1	94.9	65. 5	36.8	09.0	82.1	56.1	31. 2	07. 2	84.3	42
43 44	26. 3 27. 4	$96.1 \\ 97.2$	66. 6 67. 8	38. 0 39. 2	10. 2 11. 5	83. 3 84. 6	57. 4 58. 6	32. 4 33. 7	08. 5 09. 7	85. 6 86. 9	43 44
45	1928.6	1998. 4	2069. 0	2140. 4	$\frac{11.3}{2212.7}$	2285.8	2359. 9	2434. 9	2511.0	2588. 2	45
46	29.7	99.6	70. 2	41.6	13. 9	87.0	61. 1	36. 2	12.3	89.5	46
47	30.9	2000.7	71.4	42.8	15. 1	88.3	62.4	37. 4	13.6	90.8	47
48	32.0	01. 9	72.6	44.0	16.3	89. 5	63.6	38.7	14.8	92.1	48
49	33. 2	03.1	73.7	45.2	17.5	90.7	64.8	40.0	16. 1	93.4	49
50	1934. 4	2004.3	2074. 9	2146. 4	2218.7	2291. 9	2366.1	2441. 2	2517.4	2594. 7	50 51
51 52	35. 5 36. 7	05. 4 06. 6	76. 1 77. 3	47. 6 48. 8	19. 9 21. 1	93. 2 94. 4	67. 3 68. 6	42. 5 43. 7	18. 7 20. 0	96. 0 97. 3	52
53	37. 8	07.8	78.5	50.0	22. 4	95. 6	69.8	45.0	21. 2	98.5	53
54	39.0	08.9	79.7	51. 2	23.6	96. 9	71.1	46.3	22.5	99.8	54
55	1940. 2	2010.1	2080.8	2152.4	2224.8	2298.1	2372.3	2447.5	2523.8	2601.1	55
56	41.3	11.3	82.0	53.6	26.0	99.3	73.6	48.8	25. 1	02.4	56
57	42. 5 43. 6	12. 5 13. 6	83. 2	54.8	27. 2 28. 4	2300.5	74.8	50.1	26. 4 27. 6	03. 7 05. 0	57 58
58 59	43.6	13.6	84. 4 85. 6	56. 0 57. 2	28.4	01.8	76. 1 77. 3	51.3	28.9	06.3	59
			50.0	37.2		30.0	,,,,				
M.	30°	810	320	33°	340	85°	360	870	380	390	M.
		-	· · · · · · · · · · · · · · · · · · ·	·	<u></u>				***************************************		

Meridional Parts, or Increased Latitudes.

M.	40°	41°	420	430	440	450	46°	470	480	490	М.
0	2607. 6	2686. 2	2766.0	2847.1	2929.5	3013. 4	3098.7	3185.6	3274.1	3364. 4	0
1	08.9	87.6	67.4	48.5	30.9	14.8	3100.1	87.1	756	65. 9	i
2	10. 2	88. 9	68. 7	49.9	32.3	, 16.2	01.6	88.5	77.1	67.4	2
3	11.5	90.2	70.1	51.2	33. 7	17. 6	03.0	90.0	78.6	69.0	3
4	12.8	91.5	71.4	52.6	35.1	19.0	04.4	91.4	80.1	70.5	4
5	2614.1	2692.8	2772.8	2853. 9	2936.5	3020.4	3105.9	3192. 9	3281.6	3372.0	5
6	15. 4	94. 2	74.1	55.3	37.9	$ \begin{array}{c c} 21.8 \\ 23.3 \end{array} $	07.3	94.4	83.1	73.5	6
7	16.8	95.5	75. 4 76. 8	56. 7 58. 0	39. 3 40. 6	$23.3 \\ 24.7$	08. 8 10. 2	$95.8 \\ 97.3$	84. 6 86. 1	75. 1 76. 6	7 8
8 9	18. 1 19. 4	96. 8 98. 1	78.1	59.4	42.0	26.1	11.6	98.8	87.6	78.1	9
10	2620. 7	2699.5	2779.5	2860.8	2943. 4	3027.5	3113.1	3200. 2	3289.0	3379.6	10
11	22. 0	2700.8	80.8	62. 1	44.8	28. 9	14.5	01.7	90.5	81. 2	11
$\hat{1}\hat{2}$	23. 3	02.1	82. 2	63. 5	46. 2	30. 3	16.0	03. 2	92.0	82.7	12
13	24.6	03.4	83.5	64.9	47.6	31.7	17.4	04.6	93.5	84. 2	13
14	25. 9	04.8	84.8	66. 2	49.0	33. 2	18.8	06.1	95.0	85.7	14
15	2627. 2	2706.1	2786. 2	2867.6	2950.4	3034.6	3120.3	3207.6	3296.5	3387.3	15
16	28.5	07. 4	87.5	69.0	51.8	36.0	21.7	09.0	98.0	88.8	16
17	29.8	08.7	88.9	70.3	53. 2 54. 5	37. 4 38. 8	23.2 24.6	10. 5 12. 0	99. 5 3301. 0	90.3 91.8	17 18
18 19	31. 1	10. 1 11. 4	90. 2 91. 6	71. 7 73. 1	55.9	40. 2	26. 0	13. 4	02.5	93. 4	19
$-\frac{13}{20}$	2633. 7	$\frac{11.4}{2712.7}$	2792.9	2874.4	2957.3	3041.7	3127.5	3214.9	3304.0	3394. 9	20
20	35.0	14.0	94.3	75.8	58.7	43. 1	28.9	16. 4	05.5	96.4	21
22	36.3	15. 4	95.6	77. 2	60. 1	44.5	30. 4	17.9	07.0	98.0	22
23	37. 6	16. 7	97.0	78.6	61.5	45. 9	31.8	19.3	08.5	99.5	23 .
24	38.9	18.0	98.3	79.9	62.9	47.3	33. 3	20.8	10.0	3401.0	24
25	2640. 2	2719.3	2799.7	.2881.3	2964.3	3048.7	3134.7	3222.3	3311.5	3402.6	25
26	41.6	20. 7	2801.0	82. 7	65. 7	50. 2	36. 2	23.7	13.0	04.1	26
27	42.9	22. 0	02.4	84.0	67.1	51.6	37.6	25. 2	14.5	05.6	27
28 29	44.2	23.3 24.7	$03.7 \\ 05.1$	85. 4 86. 8	68. 5 69. 9	53. 0 54. 4	39. 0 40. 5	26.7 28.2	16.0 17.5	07. 2 08. 7	28 29
$\frac{29}{30}$	$\frac{45.5}{2646.8}$	$\frac{24.7}{2726.0}$	2806. 4	2888. 2	$\frac{03.3}{2971.3}$	3055. 9	3141.9	$\frac{26.2}{3229.6}$	3319.0	3410. 2	30
31	48. 1	27.3	07.8	89.5	72.7	57.3	43. 4	31. 1	20.5	11.8	31
32	49. 4	28.6	09.1	90.9	74. 1	58.7	44.8	32.6	22. 1	13. 3	32
33	50.7	30.0	10.5	92.3	75.5	60. 1	46.3	34.1	23.6	14.8	33
34	52.0	31.3	11.8	93.7	76. 9	61.5	47.7	35.6	25. 1	16.4	34
35	2653.3	2732.6	2813. 2	2895.0	2978.3	3063.0	3149.2	3237.0	3326.6	3417.9	35
36	54.7	34.0	14.5	96.4	79.7	64.4	50.6	38.5	28. 1	19.5	36
37	56.0	35.3	15.9	97.8	81.1	65. 8	52.1	40.0	29.6	21.0	37
38 39	57.3	36.6	17. 2 18. 6	99. 2 2900. 5	82. 5 ,83. 9	67. 2 68. 7	53. 5 55. 0	$41.5 \\ 42.9$	$\begin{array}{c c} 31.1 \\ 32.6 \end{array}$	$22.5 \\ 24.1$	$\frac{38}{39}$
	58.6	$\frac{38.0}{2739.3}$	2820. 0	2901. 9	2985. 3	3070. 1	3156.4	3244. 4	3334.1	3425.6	40
40 41	2659. 9 61. 2	40.6	21. 3	03. 3	86.7	71.5	57.9	45. 9	35.6	27. 2	41
42	62.5	42.0	22. 7	04.7	88. 1	72. 9	59.4	47.4	37.1	28.7	42
43	63. 9	43.3	24.0	06. 1	89.5	74.4	60.8	48.9	38.6	30. 2	43
44	65. 2	44.6	25.4	07.4	90.9	75.8	62.3	50.3	40. 2	31.8	44
45	2666.5	2746.0	2826.7	2908.8	2992. 3	3077.2	3163.7	3251.8	3341.7	3433.3	45
. 46	67.8	47.3	28.1	10.2	93. 7	78.7	65.2	53. 3	43. 2	34.9	46
47	69. 1	48.6	29.4	11.6	95.1	80.1	66.6	54.8	44.7	36.4	47
48 49	70. 4 71. 7	50. 0 51. 3	30. 8 32. 2	13. 0 14. 3	96.5 97.9	81. 5 82. 9	68. 1 69. 5	56.3 57.8	46. 2 47. 7	38. 0 39. 5	48 49
50	2673. 1	$\frac{31.3}{2752.7}$	2833. 5	2915.7	2999.3	3084. 4	3171.0	3259.3	3349. 2	3441.0	50
51	74. 4	54.0	34. 9	17.1	3000.7	85. 8	72.5	60, 7	50.8	42.6	51
52	75. 7	55.3	36.2	18.5	02.1	87. 2	73. 9	62. 2	52.3	44.1	52
53	77.0	56.7	37.6	19.9	03.5	88.7	75.4	63.7	53.8	45. 7	53
54	78.3	58.0	39.0	21.2	04.9	90.1	76.8	65.2	55.3	47. 2	54
55	2679.6	2759.3	2840.3	2922.6	3006.3	3091.5	3178.3	3266.7	3356.8	3448.8	55
56	81.0	60.7	41.7	24.0	07.7	93.0	79.7	68. 2	58.3	50.3	56
57	82.3	62.0	43.0	25.4	09.2	94. 4 95. 8	81.2	69.7	59.9	51.9 53.4	57~ 58
58 59	83. 6 84. 9	63.4	44. 4 45. 8	26. 8 28. 2	10. 6 12. 0	95.8	82. 7 84. 1	$71.1 \\ 72.6$	61. 4	55. 0	59
03	04. 9	04.7		20. 2	12.0				- Ja. 8		
M.	400	410	420	43°	440	45°	46°	470	480	49°	M.

Meridional Parts, or Increased Latitudes.

M.	50°	51°	520	5 3 °	540	550	56°	570	58°	590	M.
0	3456. 5	3550.6	3646. 7	3745. 1	3845. 7	3948. 8	4054.5	4163.0	4274.4	4389.1	0
1	58. 1	52. 2	48.4	46.7	47.4	50.5	56.3	64.8	76.3	91.0	1
2	59.6	53.8	50.0	48.4	49.1	52.3	58.1	66.6	78.2	92.9	2
$\frac{3}{4}$	$61.2 \\ 62.7$	55. 4 56. 9	51.6 53.2	50.0 51.7	50.8 52.5	54. 0 55. 7	59. 8 61. 6	$68.5 \\ 70.3$	80.1	94.9	3
5	3464.3	3558.5	3654.8	3753. 4	3854. 2	3957. 5	4063.4	4172.1	82. 0 4283. 9	$\frac{96.8}{4398.8}$	5
6	65.9	60.1	56.5	55.0	55.9	59. 2	65. 2	74.0	85.7	4400.7	6
7	67.4	61.7	58.1	56.7	57.6	61.0	67.0	75.8	87.6	02.6	7
8 9	69. 0 70. 5	63.3 64.9	59.7	58.3	59.3	62. 7	68.8	77. 7	89.5	04.6	8
10	3472.1	3566.5	$\frac{61.3}{3663.0}$	$\frac{60.0}{3761.7}$	$\frac{61.0}{3862.7}$	$\frac{64.5}{3966.2}$	$\frac{70.6}{4072.4}$	$\frac{79.5}{4181.3}$	$\frac{91.4}{4293.3}$	$\frac{06.5}{4408.5}$	$\frac{9}{10}$
11	73.6	68. 1	64.6	63.3	64. 4	68.0	74.2	83. 2	95. 2	10. 4	11
12	75. 2	69.7	66. 2	65.0	66.1	69.7	76.0	85.0	97.1	12.4	12
13	76.7	71.3	67. 9	66.7	67.8	71.5	77. 7	86.9	99.0	14.3	13
14	$\frac{78.3}{3479.9}$	$\frac{72.8}{3574.4}$	$\frac{69.5}{3671.1}$	$\frac{68.3}{3770.0}$	$\frac{69.5}{3871.2}$	$\frac{73.2}{3975.9}$	$\frac{79.5}{4081.3}$	88.7	4300.9	16.3	14
16	81.4	76.0	72.7	71.7	72.9	76.7	83.1	4190.6 92.4	4302. 8 04. 7	4418. 2 20. 2	15 16
17	83.0	77.6	74.4	73.3	74.6	78.5	84.9	94. 2	06.6	22. 1	17
18	84.5	79.2	76.0	75.0	76.3	80. 2	86.7	96.1	08.5	24.1	18
19	86.1	80.8	77.6	76.7	78.1	82.0	88.5	97.9	10.4	26.1	19
$\frac{20}{21}$	3487. 7 89. 2	3582. 4 84. 0	3679.3 80.9	3778.3 80.0	3879. 8 81. 5	3983. 7 85. 5	4090.3 92.1	4199.8 4201.6	4312.3 14.2	4428. 0 30. 0	$\frac{20}{21}$
22	90.8	85.6	82.5	81.7	83. 2	87.2	93. 9	03.5	16.1	31.9	22
. 23	92.4	87.2	84.2	83. 3	84.9	89.0	95.7	05.3	18.0	33.9	23
24	93.9	88.8	85.8	85.0	86.6	90.7	97.5	07.2	19.9	35.8	24
$\frac{25}{26}$	3495.5 97.1	3590. 4 92. 0	3687. 4 89. 1	3786. 7 88. 4	3888.3	3992.5	4099.3	4209.0	4321.8	4437.8	25
27	98.6	93.6	90.7	90.0	$90.0 \\ 91.8$	94. 3 96. 0	$4101.1 \\ 02.9$	$10.9 \\ 12.8$	23.7 25.6	39.8 41.7	26 27
28	3500. 2	95. 2	92.3	91.7	93.5	97.8	04.8	14.6	27.5	43. 7	28
29	01.8	96.8	94.0	93.4	95.2	99.5	06.6	16.5	29.4	45.7	29
30 31	3503. 3	3598.4	3695. 6	3795.1	3896. 9	4001.3	4108.4	4218.3	4331.3	4447.6	30
$\frac{31}{32}$.	$04.9 \\ 06.5$	3600. 0 01. 6	97.3 98.9	96. 8 98. 4	98.6 3900.4	$03.1 \\ 04.8$	$10.2 \\ 12.0$	$ \begin{array}{c c} 20.2 \\ 22.0 \end{array} $	$33.2 \\ 35.2$	49. 6 51. 6	$\frac{31}{32}$
33	08.0	03. 2	3700.5	3800.1	02.1	06.6	13.8	23. 9	37. 1	53.5	33
34	09.6	04.8	02.2	01.8	03.8	08.3	15.6	25.8	39.0	55.5	34
35	3511. 2	3606.4	3703.8	3803.5	3905. 5	4010.1	4117.4	4227.6	4340.9	4457.5	35
36 37	12.7 14.3	08. 0 09. 6	05. 5 07. 1	$05.1 \\ 06.8$	07. 2 09. 0	11. 9 13. 6	$ \begin{array}{c} 19.2 \\ 21.0 \end{array} $	$29.5 \\ 31.3$	42. 8 44. 7	59. 4 61. 4	36 37
38	15.9	11. 2	08. 7	08.5	10.7	15.4	22. 9	33. 2	46. 6	63. 4	38
39	17.5	12.8	10.4	10.2	12.4	17.2	24.7	35.1	48.6	65.4	39
40	3519.0	3614.5	3712.0	3811.9	3914.1	4018.9	4120.5	4236. 9	4350.5	4467.3	40
41 42	$20.6 \\ 22.2$	16. 1 17. 7	13. 7 15. 3	$13.6 \\ 15.2$	15. 9 17. 6	20.7 22.5	$ \begin{array}{c} 28.3 \\ 30.1 \end{array} $	38. 8 40. 7	52. 4 54. 3	69. 3 71. 3	41 42
43	23. 7	19.3	17. 0	17. 0	19.3	24.3	31. 9	42.5	56.2	73.3	43
44	25.3	20.9	18.6	18.6	21.0	26.0	33.8	44.4	58. 2	75.3	44
45	3526. 9	3622.5	3720.3	3820. 3	3922.8	4027.8	4135.6	4246.3	4360.1	4477. 2	45
46 47	$28.5 \\ 30.1$	$ \begin{array}{c} 24.1 \\ 25.7 \end{array} $	21.9 23.6	$\begin{array}{c} 22.0 \\ 23.7 \end{array}$	$24.5 \\ 26.2$	29. 6 31. 4	$37.4 \\ 39.2$	48. 1 50. 0	62. 0 63. 9	$79.2 \\ 81.2$	46 47
48	31.6	$\frac{25.7}{27.3}$	25.0 25.2	25. 4	28. 0	33. 1	41.0	51.9	65. 9	83. 2	48
49	33. 2	29.0	26.9	27.1	29.7	34.9	42.9	53.8	67.8	85. 2	49
50	3534.8	3630. 6	3728.5	3828.7	3931. 4	4036. 7	4144.7	4255.6	4369.7	4487.2	50
51 52	$\frac{36.4}{37.9}$	$\frac{32.2}{33.8}$	$30.2 \\ 31.8$	30.4 32.1	33. 2 34. 9	38.5	46.5	57. 5	71.7	89.1	$\begin{array}{c} 51 \\ 52 \end{array}$
53	39.5	35. 4	$31.8 \\ 33.5$	33. 8	36.6	40. 2 42. 0	$\frac{48.3}{50.2}$	59. 4 61. 3	73.6 75.5	$91.1 \\ 93.1$	53
54	41.1	37.0	35.1	35.5	38. 4	43. 8	52.0	63. 1	77.4	95. 1	54
55	3542.7	3638. 6	3736.8	3837. 2	3940.1	4045.6	4153.8	4265.0	4379.4	4497.1	55
56 57	44. 3 45. 9	40. 3 41. 9	38. 4 40. 1	$38.9 \\ 40.6$	41.8 43.6	47.4	55.7	66.9	$81.3 \\ 83.2$	99.1	56 57
58	47.4	43.5	40. 1	40. 6	45. 3	49. 1 50. 9	$57.5 \\ 59.3$	68. 8 70. 7	85. 2 85. 2	4501. 1 03. 1	58
59	49.0	45.1	43. 4	45.0	47.0	52.7	61.1	72.5	87.1	05.1	59
М.		51°	520			550	56°	570	580	590	М.
, Al.	90-	91.	020	93"	01	99~	90~	01-	99~	00-	DI.

Meridional Parts, or Increased Latitudes.

M.	600	610	620	630	640	650	660	670	680	690	M.
		·				-				-	-
0	4507.1	4628.7	4754.3	4884.1	5018.4	5157. 6 59. 9	5302.1	5452. 4 55. 0	5609.1	5772.7	0
2	09. 1 11. 1	30.8	56. 4 58. 6	86. 3 88. 5	22. 9	62.3	07.0	57.6	14.4	75. 5 78. 3	2
3	13. 1	34.9	60.7	90.7	25. 2	64.7	09.5	60.1	17.1	81.1	3
4	15.1	37.0	62.8	92.9	27.5	67.0	11.9	62.7	19.8	83.8	4
5	4517.1	4639.0	4764.9	4895. 1	5029.8 32.1	5169.4	5314.4	5465. 2	5622.4	5786.6	5
6 7	$19.1 \\ 21.1$	$\begin{array}{ c c c c }\hline 41.1 \\ 43.2 \end{array}$	67. 1 69. 2	97.3 99.5	34.3	71.8	16. 9 19. 3	67. 8 70. 4	25.1 27.8	89. 4 92. 2	6 7
8	23. 1	45.2	71.3	4901.7	36.6	76.5	21.8	72.9	30.5	95. 1	8
9	25.1	47.3	73.5	03.9	38.9	78.9	24.3	75.5	33. 2	97.9	9
10	4527. 1	4649.4	4775.6	4906.1	5041. 2 43. 5	5181.3	5326.7	5477.1	5635. 9	5800.7	10
11 12	29. 1 31. 1	51. 5 53. 5	77.8 79.9	08. 3 10. 5	45.8	83.7 86.0	29. 2 31. 7	80. 7 83. 2	38.5 41.2	03.5	11 12
13	33. 1	55.6	82.0	12.8	48.1	88.4	34. 2	85.8	43. 9	09.1	13
14	35.1	57.7	84.2	15.0	50.4	90.8	36.6	88.4	46.6	11.9	14
15	4537.1	4659.7	4786. 3	4917. 2	5052.7	5193. 2	5339. 1	5491.0	5649.3	5814.7	15
16 17	39.2 41.2	61. 8 63. 9	88. 5 90. 6	19. 4 21. 6	55. 0 57. 3	95. 6 98. 0	41. 6 44. 1	93. 6 96. 2	52. 0 54. 7	17. 6 20. 4	16 17
18	43. 2	66.0	92.8	23. 9	59.6	5200.4	46.6	98.7	57.4	23. 2	18
19	45. 2	68.1	94.9	26. 1	61. 9	02.7	49.1	5501.3	60.1	26.0	19
20	4547. 2	4670.1	4797.1	4928.3	5064. 2	5205.1	5351.5	5503.9	5662. 8	5828. 9	20
$egin{array}{c c} 21 \ 22 \end{array}$	49. 2 51. 3	72. 2 74. 3	99. 2 4801. 4	$30.5 \\ 32.8$	66. 5 68. 8	07.5	54. 0 56. 5	06.5	65. 5 68. 2	31. 7 34. 5	21
23	53. 3	76. 4	03. 5	35. 0	71.1	12.3	59.0	11.7	70. 9	37. 4	22 23
24	55. 3	78.5	05. 7	37.2	73.4	14.7	61.5	14.3	73. 7	40.2	24
25	4557.3	4680.6	4807.8	4939. 4	5075.7	5217. 1	5364.0	5516.9	5676. 4	5843.0	25
26 27	59. 3 61. 4	82. 6 84. 7	10. 0 12. 1	41.7 43.9	78. 1 80. 4	19. 5 21. 9	66. 5 69. 0	19. 5 22. 1	79. 1 81. 8	45. 9 48. 7	26 27
28	63. 4	86.8	14.3	46. 1	82. 7	24.3	71.5	24.7	84.5	51.6	28
29	65. 4	88. 9	16.5	48.4	85. 0	26.7	74.0	27.3	87. 3	54. 4	28 29
30	4567.4	4691.0	4818.6	4950.6	5087.3	5229.1	5376.5	5529. 9	5690.0	5857.3	30
$\begin{array}{c c} 31 \\ 32 \end{array}$	69. 5 71. 5	93. 1 95. 2	20. 8 23. 0	52. 9 55. 1	89. 6 92. 0	31. 6 34. 0	79. 0 81. 5	32. 5 35. 2	92. 7 95. 4	60. 1 63. 0	31 32
33	73.5	97.3	25. 1	57.3	94.3	36.4	84.0	37.8	98. 2	65. 9	33
34	75.6	99.4	27. 3	59.6	96.6	38.8	86. 5	40.4	5700.9	68.7	34
35	4577.6	4701.5	4829.5	4961.8	5098.9	5241. 2	5389.1	5543.0	5703.6	5871.6	35
36 37	79. 6 81. 7	03. 6 05. 7	$31.6 \\ 33.8$	64. 1 66. 3	5101.3 03.6	43. 6 46. 0	91. 6 94. 1	45.6	06.4	74. 4 77. 3	36 37
38	83.7	07.8	36.0	68.6	05. 9	48.5	96.6	50.9	11.9	80. 2	38
39	85.7	09.9	38.1	70.8	08.3	50.9	99.1	53.5	14.6	83. 1	39
40	4587.8	4712.0	4840.3	4973. 1	5110.6	5253.3	5401.6	5556.1	5717.3	5885.9	40
41 42	89. 8 91. 8	14. 1 16. 2	42.5 44.7	75.3 77.6	12. 9 15. 3	55. 7 58. 2	04. 2 06. 7	58. 8 61. 4	20. 1 22. 8	88. 8 91. 7	41 42
43	93.9	18.3	46.8	79.8	17.6	60.6	09. 2	64.0	25.6	94.6	43
44	95.9	20.4	49.0	82.1	19.9	63.0	11.8	66.7	28. 3	97.4	44
45	4598. 0 4600. 0	4722.5	4851.2	4984.3	5122.3	5265. 4	5414.3	5569.3	5731.1	5900.3	45
46 47	02.1	24. 6 26. 7	53. 4 55. 6	86. 6 88. 9	24.6 27.0	67. 9 70. 3	16.8 19.3	71. 9 74. 6	33. 9 36. 6	03. 2 06. 1	46 47
48	04.1	28.9	57.8	91.1	29.3	72.8	21.9	77.2	39. 4	09.0	48
49	06.1	31.0	59. 9	93.4	31.7	75. 2	24. 4	79.9	42.1	11.9	49
50	4608.2	4733.1	4862.1	4995.6	5134.0	5277.6	5427.0	5582.5	5744.9	5914.8	50
51 52	10. 2 12. 3	35. 2 37. 3	64. 3 66. 5	97. 9 5000. 2	36. 4 38. 7	80. 1 82. 5	29. 5 32. 0	85. 2 87. 8	47. 7 50. 4	17. 7 20. 6	51 52
53	14.3	39.4	68.7	02.4	41.1	85.0	34.6	90.5	53. 2	23.5	53
54	16.4	41.6	70.9	04.7	43. 4	87.4	37.1	93.1	56.0	26. 4	54
	4618.5	4743.7	4873.1	5007.0	5145.8	5289.8	5439.7	5595.8	5758.8	5929.3	55
56 57	20.5 22.6	45.8 47.9	75. 3 77. 5	09. 3 11. 5	48. 1 50. 5	92. 3 94. 7	42. 2 44. 8	98. 4 5601. 1	61.5 64.3	32. 2 35. 1	56 57
58	24.6	50.0	79.7	13.8	52.8	97. 2	47.3	03.8	67. 1	38.1	58
59	26.7	52. 2	81.9	16. 1	55. 2	99.7	49.9	06.4	69. 9	41.0	59
м.	600	610	620	63°	640	650	66°	670	680	690	M.
						00	00-	01-	08-	08-	M.

TABLE 3.

Meridional Parts, or Increased Latitudes.

М.	70°	71°	720	73°	740	75°	76°	770	78°	790	M.
0	5943. 9	6123.5	6312.5	6512.0	6723. 2	6947. 7	7187.3	7444. 4	7721.6	8022. 7	0
1	46.8	26.6	15.8	15.4	26.8	51.6	91.5	48.8	26.4	27. 9	1
$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$	49.7	$\frac{29.7}{32.8}$	$19.0 \\ 22.3$	$ \begin{array}{c} 18.9 \\ 22.3 \end{array} $	30.5	55. 4 59. 3	95. 6 99. 7	53. 3 57. 7	31.3 36.1	33.2	$\frac{2}{3}$
4	$52.7 \\ 55.6$	35.8	25.5	25.7	34. 1 37. 7	63. 2	7203. 9	62. 2	40. 9	$ \begin{array}{c c} 38.5 \\ 43.7 \end{array} $	4
5	5958.5	6138. 9	6328.8	6529.1	6741.4	6967.1	7208.0	7466.7	7745.8	8049.0	5
6	61.5	42.0	32.0	32.6	45.0	70. 9	12.2	71.1	50.6	54.3	6
7	64.4	45.1	35.3	36.0	48.7	74.8	16.4	75.6	55.5	59.6	7
8	67.3	48.2	38.5	39.5	52.3	78.7	20.5	80. 1	60.3	64.9	8
9	70.3	51.3	41.8	42.9	56.0	82.6	24.7	84.6	65. 2	70. 2	9
10 11	5973. 2 76. 2	6154.4 57.5	6345. 0 48. 3	6546. 4 49. 8	6759. 7 63. 3	6986. 5 90. 4	7228.9 33.1	7489. 1 93. 6	7770.1 74.9	8075.5 80.8	10 11
12	79.1	60.6	51.6	53.3	67. 0	94.3	37. 3	98.1	79.8	86.1	12
13	82.1	63.7	54.8	56.7	70.7	98.3	41.5	7502.6	84.7	91.5	13
14	85.0	66.8	58.1	60.2	74.3	7002. 2	45.7	07.1	89.6	96.8	14
15	5988.0	6169.9	6361. 4	6563.7	6778.0	7006. 1	7249.9	7511.7	7794.5	8102.2	15
16 17	90. 9 93. 9	73.0	64. 7 67. 9	67. 1 70. 6	81. 7 85. 4	10. 0 14. 0	54. 1 58. 3	$ \begin{array}{c c} 16.2 \\ 20.7 \end{array} $	99. 4 7804. 3	07. 5 12. 9	16 17
18	96. 9	$76.1 \\ 79.2$	71. 2	74.1	89. 1	17.9	62.5	25.3	09.3	18.3	18
19	99.8	82.3	74.5	77.6	92.8	21.8	66. 7	29.8	14. 2	23.7	19
20	6002.8	6185.5	6377.8	6581.0	6796, 5	7025.8	7270.9	7534.4	7819.1	8129.1	20
21	05.8	88.6	81.1	84.5	6800. 2	29. 7	75. 2	38. 9	24.1	34.5	21
22	08.7	91.7	84.4	88.0	03. 9	33.7	79.4	43.5	29.0	39.9	22 23
$\begin{array}{c c} 23 \\ 24 \end{array}$	11. 7 14. 7	94. 8 98. 0	87. 7 91. 0	91. 5 95. 0	07. 6 11. 3	37. 7 41. 6	83. 7 87. 9	48. 1 52. 7	34. 0 39. 0	45. 3 50. 8	23
25	6017. 7	6201.1	6394.3	6598.5	6815.0	7045.6	7292. 2	7557. 3	7844.0	8156. 2	25
26	20. 7	04. 2	97.6	6602.0	18.8	49.6	96. 4	61.8	48. 9	61.6	26
27	23.6	07.4	6400.9	05. 5	22.5	53. 5	7300.7	66. 4	53.9	67.1	27
28	26.6	10.5	04.3	09.0	26. 2	57. 5	05.0	71.0	58.9	72.6	28
29	29.6	13.7	07.6	12.5	30.0	61.5	09.2	75.7	63.9	78.0	29
30 31	6032. 6 35. 6	6216. 8 20. 0	6410. 9 14. 2	6616. 1 19. 6	6833. 7 37. 4	7065. 5 69. 5	7313. 5 17. 8	7580. 3 84. 9	7868. 9 74. 0	8183. 5 89. 0	30 31
$\frac{31}{32}$	38.6	23. 1	17.6	23.1	41.2	73.5	22. 1	89.5	79.0	94.5	32
33	41.6	26. 3	20.9	26.6	44. 9	77.5	26.4	94.2	84.0	8200.0	33
34	44.6	29.4	24.2	30.2	48.7	81.5	30. 7	98.8	89.1	05.5	34
35	6047.6	6232.6	6427.6	6633. 7	6852.4	7085.5	7335.0	7603.4	7894.1	8211.1	35
36 37	50. 6 53. 6	$35.8 \\ 38.9$	$30.9 \\ 34.2$	37. 2 40. 8	56. 2 60. 0	89. 5 93. 5	39. 3 43. 6	08. 1 12. 8	99. 2 7904. 2	16. 6 22. 1	36 37
38	56. 6	42.1	37.6	44.3	63.7	97.6	47.9	17.4	09.3	27.7	38
39	59.7	45.3	40.9	47. 9	67. 5	7101.6	52.3	22. 1	14. 4	33. 3	39
40	6062.7	6248.4	6444.3	6651.4	6871.3	7105.6	7356.6	7626.8	7919.4	8238.8	40
41	65.7	51.6	47.6	55.0	75. 1	09.7	60.9	31.4	24.5	44.4	41
42	68.7	54.8	51.0	58.5	78. 9 82. 6	13. 7 17. 8	65.3	36. 1 40. 8	29. 6 34. 7	50. 0 55. 6	42 43
43	71. 7 74. 8	58. 0 61. 2	54. 4 57. 7	62. 1 65. 7	86. 4	21.8	69. 6 74. 0	45.5	39.9	61. 2	44
45	6077.8	6264. 4	6461.1	6669.2	6890. 2	7125.9	7378.3	7650. 2	7945.0	8266.8	45
46	80.8	67. 6	64. 5	72.8	94.0	29. 9	82.7	55.0	50.1	72.4	46
47	83.9	70.8	67.8	76. 4	97.8	34.0	87.1	59.7	55.2	78.1	47
48	86. 9	74.0	71.2	80.0	6901. 7	38.1	91.4	64.4	60.4	83. 7 89. 3	48 49
49 50	89. 9 6093. 0	77. 2 6280, 4	$\frac{74.6}{6478.0}$	$\frac{83.5}{6687.1}$	05. 5 6909. 3	$\frac{42.2}{7146.2}$	$\frac{95.8}{7400.2}$	69. 1 7673. 9	$\frac{65.5}{7970.7}$	8295.0	50
50 51	96.0	83.6	81.4	90.7	13.1	50.3	04.6	78.6	75. 9	8300.7	51
52	99. 1	86.8	84.8	94.3	16. 9	54.4	09.0	83.4	81.0	06.4	52
53	6102.1	90.0	88.2	97. 9	20.8	58.5	13.4	88.1	86. 2	12.0	53
54	05.2	93.2	91.6	6701.5	24.6	62.6	17.8	92. 9	91.4	17.7	54
55	6108. 2	6296.4	6495.0	6705.1	6928.4	7166. 7 70. 8	7422. 2 26. 6	7697. 7 7702. 5	7996. 6 8001. 8	8323. 4 29. 2	55 56
56 57	$11.3 \\ 14.3$	99. 6 6302. 9	98. 4 6501. 8	08. 7 12. 4	32. 3 36. 1	75.0	31. 1	07.2	07.0	34.9	57
58	17. 4	06.1	05. 2	16.0	40.0	79.1	35.5	12.0	12.2	40.6	58
59	20.5	09.3	08.6	19.6	43.8	83. 2	39.9	16.8	17.5	46.4	59
M.	700	710	720	73°	740	750	760	770	780	790	M.

Length of a Degree in Latitude and Longitude.

		Degree of Long.			Degree of Lat.		Lat
Lat.	Naut. miles.	Statute miles.	Meters.	Naut. miles.	Statute miles.	Meters.	Litt
0							0
0	60.068	69. 172	111 321	59.661	68.704	110 567	0
ĭ	0.059	9. 162	1 304	. 661	.704	568	1
$\overline{2}$	0.031	9. 130	1 253	. 662	.705	569	2
3	59. 986	9.078	1 169	. 663	706	570	3
4	9. 922	9.005	1 051	.664	.708	573	4
$-\frac{1}{5}$	59. 840	68.911	110 900	59.666	68.710	110 576	$-\frac{1}{5}$
6	9. 741	8.795	0 715	. 668	712	580	6
7	9, 622	8.660	0 497	.670	715	584	7
8	9. 487	8.504	0 245	.673	718	589	8
9	9. 333	8. 326	109 959	.676	721	595	9
10	59. 161	68. 129	109 641	59.680	68. 725	110 601	10
11	8.971	7. 910	9 289	. 684	. 730	608	11
12	8. 764	7.670	8 904	. 687	. 734	616	12
13	8, 538	7.410	8 486	. 692	. 739	624	13
14	8. 295	7. 131	8 036	. 697	.744	633	14
15	58.034	66.830	107 553	59.702	68. 751	110 643	15
16	7.756	6.510	7 036	. 707	.757	653	16
17	7.459	6. 169	6 487	. 713	. 764	663	17
18	7.146	5.808	5 906	. 719	.771	675	18
. 19	6.816	5. 427	5 294	. 725	. 778	686	19
20	56, 468	65,026	104 649	59, 732	68. 786	110 699	20
21	6. 102	4.606	3 972	. 739	.794	712	21
22	5. 720	4. 166	3 264	. 746	. 802	725	22
23	5. 321	3, 706	2 524	. 754	.811	739	23
24	4. 905	3. 228	1 754	. 761	. 820	753	24
25	54. 473	62.729	100 952	59.769	68. 829	110 768	25
26	4. 024	2. 212	0 119	. 777	. 839	783	26
27	3.558	1. 676	99 257	.786	.848	799	27
28	3.076	1. 122	8 364	. 795	.858	815	28
29	2.578	0.548	7 441	. 804	.869	832	29
30	52.064	59.956	96 488	59.813	68. 879	110 849	$\frac{20}{30}$
31	1.534	9.345	5 506	. 822	. 890	866	31
$\frac{31}{32}$	0.989		4 495				91
33	0. 428	8.716	9 455	. 831	. 901	883	32
34	49.851	8. 071 7. 407	3 455 2 387	. 841	.912	901 919	33 34
				. 851			
35	49. 259	56. 725	91 290	59, 861	68. 935	110 938	35
36	8, 653	6.027	0 166	. 871	.946	956	36
37	8.031	5. 311	89 014	. 881	. 958	975	37
38	7.395	4.579	7 835	. 891	. 969	994	38
39	6. 744	3.829	6 629	. 902	.981	111 013	39
40	46.079	53.063	85 396	59. 912	68. 993	111 033	40
41	5. 399	2. 281	4 137	. 923	69.006	052	41
42	4.706	1.483	2 853	. 933	.018	072	42
43	4.000	0.669	1 543	. 944	. 030	091	43
44	3. 280	49. 840	0 208	. 954	. 042	111	44
45	2.546	8.995	78 849	. 965	. 054	131	45

TABLE 4.

Length of a Degree in Latitude and Longitude.

T - 4	*	Degree of Long.			Degree of Lat.		*
Lat.	Naut. miles.	Statute miles.	Meters.	Naut, miles.	Statute miles.	Meters.	Lat.
0							0
45	42. 546		78 849	59, 965	69.054	111 131	45
46	1.801	8. 136	7 466	. 976	. 066	151	46
47	1.041	7. 261	6 058	. 987	079	170	47
48	0. 268	6. 372	4 628	. 997	. 091	190	48
49	39.484	5.469	3 174	60.008	. 103	210	49
50	38.688	44.552	71 698	60.019		111 229	50
51	7.880	3, 621	0 200	. 029	. 127	249	51
52	7.060	2.676	0 200 68 680	. 039	. 139	268	52
53	6.229	1.719	7 140	. 050	. 151	287	53
54	5.386	0.749	5 578	. 060		306	54
55	34.532	39.766	63 996	60.070	69. 175	111 325	55
56	3.668	8. 771	2 395	. 080	. 086	343	56
57	2.794	7.764	0 774	. 090	. 197	362	57
58	1.909	6.745	59 135	. 100	209	380	58
59	1.015	5. 716	7 478	. 109	. 220	397	59
60	30. 110	34.674	55 802	60.118	69.230	111 415	60
61	29. 197	3.623	4 110	. 128	. 241	432	61
62	8.275	2,560	2 400 0 675	. 137	. 251	448	62
63	7.344	1.488	0 675	. 145	. 261	464	63
64	6. 404	0.406	48 934	. 154	. 271	480	64
65	25.456	29.315	47 177	60. 162	69. 281	111 496	65
66	4.501	8. 215 7. 106	5 407 3 622	. 170	. 290	511	66
67	3. 538	7. 106	3 622	. 178	. 299	525	67
68	2.567	5.988	1 823	. 186	. 308	539	68
69	1.590	4.862	. 0 012	. 193	. 316	553	69
70	20.606	23.729	38 188	60. 200	69. 324	111 566	70
71	19.616	2,589	6 353	. 207	. 332	578	71
72	8.619	1.441	4 506	. 213	. 340	590	72
72 73	7, 617	1. 441 0. 287	2 648	. 220	. 347	602	73
74	6.609	19. 127	0 781	. 225	. 354	613	74
75	15.596	17. 960	28 903	60. 231	69.360	111 623	75
76 77	4.578	6.788	7 017	. 236	. 366	633	76
77	3.556	5, 611	5 123	. 241	. 372	642	77
78	2.529	4.428	3 220	. 246	. 377	650	78
79	1.499	4. 428 3. 242	3 220 1 311	. 250	. 382	658	78 79
80	10.465	12,051	19 394	60. 254	69.386	111 665	80
81	9, 428	10.857	7 472	. 257	. 390	671	81
82	8, 388	9,659	5 545	. 260	. 394	677	82
83	7.345	8.458	3 612	. 263	. 397	682	83
84	6.300		1 675	. 265	. 400	687	84
85	5. 253	6.049	9 735	60. 268	69.402	111 691	85
86	4. 205	4.842	7 792	. 269	. 404	694	86
87	3.154	3,632	5 846	. 270	. 405	696	87
88	2.103	2,422	· 3 898	. 271	. 407	698	88
89	1.052	1.211	1 949	. 272	.407	699	89
90	0	0	0	. 272	. 407	699	90

Difference between the course and second				Diff	erence	betweer	the cou	the course and first bearing, in points.						
bearing, in points.	2	l	21/4		21/2		2¾		3		31/4		8	1/2
3 3 3 3 4 4 4 4 5 5 5 5 5 6 6 6 6 7 7 7 7 8 8 8 8 9 9 9 9 10 0 11 11 11 11 11 11 11 11 11 11 11 1	1. 57	0.094 0.084 0.761 0.666 0.630 0.555 0.552 0.555 0.552 0.549 0.447 0.446 0.439 0.335 0.	2. 19 1. 76 1. 47 1. 12 1. 00 0. 91 0. 83 0. 64 0. 55 0. 53 0. 51 0. 44 0. 43 0. 43 0. 43 0. 43 0. 43 0. 43 0. 44 0. 45 0. 45 0. 46 0. 47 0. 48 0. 43 0. 43 0. 44 0. 45 0. 45 0. 45 0. 45 0. 55 0. 55	$\begin{array}{c} 1.31\\ 1.12\\ 0.99\\ 0.83\\ 0.77\\ 0.66\\ 0.63\\ 0.61\\ 0.59\\ 0.55\\ 0.54\\ 0.52\\ 0.51\\ 0.54\\ 0.47\\ 0.46\\ 0.43\\ 0.42\\ 0.43\\ 0.42\\ 0.43\\ 0.42\\ 0.43\\ 0.42\\ 0.43\\ 0.42\\ 0.39\\ 0.36\\ 0.35\\ 0.34\\ 0.35\\ 0.31\\ 0.30\\ 0.28\\ 0.31\\ 0.30\\ 0.22\\ 0.21\\ 0.22\\$	$\begin{array}{c} 2.\ 42\\ 1.\ 94\\ 1.\ 40\\ 1.\ 40\\ 1.\ 23\\ 1.\ 10\\ 1.\ 092\\ 0.\ 85\\ 0.\ 79\\ 0.\ 64\\ 0.\ 61\\ 0.\ 57\\ 0.\ 55\\ 0.\ 52\\ 0.\ 50\\ 0.\ 49\\ 0.\ 48\\ 0.\ 49\\ 0.\ 48\\ 0.\ 47\\ 0.\ 47\\ 0.\ 47\\ 0.\ 47\\ 0.\ 47\\ 0.\ 47\\ 0.\ 47\\ 0.\ 47\\ 0.\ 50\\ 0.\ 50\\ 0.\ 50\\ 0.\ 51\\ 0.\ 55\\ 0.\ 55\\ 0.\ 55\\ 0.\ 55\\ 0.\ 55\\ 0.\ 55\\ 0.\ 55\\ 0.\ 57\\ 0.\ 56\\ 0.\ 61$	1. 53 1. 30 1. 104 0. 95 0. 89 0. 75 0. 66 0. 62 0. 60 0. 55 0. 55 0. 55 0. 55 0. 55 0. 48 0. 47 0. 44 0. 43 0. 44 0. 43 0. 33 0. 37 0. 38 0. 38 0. 38 0. 56 0. 56	$\begin{array}{c} 2.\ 64 \\ 2.\ 12 \\ 1.\ 77 \\ 1.\ 53 \\ 1.\ 34 \\ 1.\ 20 \\ 0.\ 93 \\ 0.\ 86 \\ 0.\ 77 \\ 0.\ 69 \\ 0.\ 66 \\ 0.\ 56 \\ 0.\ 56 \\ 0.\ 55 \\ 0.\ 52 \\ 0.\ 52 \\ 0.\ 52 \\ 0.\ 51 \\ 0.\ 52 \\ 0.\ 52 \\ 0.\ 51 \\ 0.\ 52 \\ 0.\ 53 \\ 0.\ 52 \\ 0.\ 53 \\ 0.\ 54 \\ 0.\ 55 \\ 0.\ 56 \\ 0.\ 5$	$\begin{array}{c} 1.\ 77 \\ 1.\ 50 \\ 1.\ 31 \\ 1.\ 18 \\ 1.\ 08 \\ 0.\ 84 \\ 0.\ 80 \\ 0.\ 84 \\ 0.\ 80 \\ 0.\ 66 \\ 0.\ 62 \\ 0.\ 66 \\ 0.\ 62 \\ 0.\ 55 \\ 0.\ 54 \\ 0.\ 55 \\ 0.\ 54 \\ 0.\ 43 \\ 0.\ 41 \\ 0.\ 40 \\ 0.\ 37 \\ 0.\ 36 \\ 0.\ 35 \\ 0.\ 33 \\ 0.\ 30 \\ 0.\ 24 \\ 0.\ 2$	2. 85 2. 29 1. 91 1. 65 1. 45 1. 108 1. 00 0. 88 0. 75 0. 62 0. 65 0. 66 0. 55 0. 56 0. 56	2. 01 1. 69 1. 48 1. 32 1. 21 1. 11 1. 04 0. 98 0. 84 0. 77 0. 69 0. 67 0. 63 0. 61 0. 59 0. 57 0. 54 0. 52 0. 54 0. 42 0. 42 0. 43 0. 38 0. 32 0. 43 0. 42 0. 38 0. 42 0. 42 0. 43 0. 43 0. 43 0. 43 0. 43 0. 44 0. 38 0. 38 0. 38 0. 44 0. 45 0. 38 0. 38 0. 38 0. 38 0. 46 0. 47 0. 48 0. 58 0. 58	3. 05 2. 45 2. 05 1. 75 1. 56 1. 16 0. 94 0. 89 0. 87 0. 74 0. 72 0. 68 0. 66 0. 61 0. 60 0. 60 0. 60 0. 60 0. 61 0. 62 0. 61 0. 62 0. 63 0. 66 0. 66	2. 26 1. 90 1. 65 1. 47 1. 23 1. 14 1. 07 0. 91 0. 87 0. 65 0. 66 0. 65 0. 65 0. 55 0. 55 0. 55 0. 48 0. 44 0. 43 0. 33 0. 34 0. 35 0. 35 0. 35 0. 36 0. 36 0. 37 0. 38 0. 38	3. 25 2. 61 2. 188 1. 66 1. 48 1. 35 1. 14 1. 06 0. 94 0. 72 0. 76 0. 66 0. 65 0. 64 0. 64 0. 64 0. 64 0. 65 0. 66 0. 67 0. 72	2. 51 2. 10 1. 82 1. 46 1. 34 1. 16 1. 09 1. 03 0. 98 0. 89 0. 79 0. 73 0. 71 0. 68 0. 63 0. 61 0. 59 0. 55 0. 53 0. 51 0. 42 0. 41 0. 39 0. 42 0. 41 0. 39 0. 30 0. 53 0. 61 0. 59 0. 57 0. 53 0. 51 0. 52 0. 53 0. 51 0. 42 0. 42 0. 41 0. 39 0. 30 0. 30 0. 50 0.

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TABLE 5A.

Difference between the course and second		Difference between the course and first bearing, in points.											
bearing, in points.	3¾	4	41/4	4½	43/4	5	51/4						
44 5 55 55 6 6 6 6 7 7 7 8 8 8 8 9 9 9 10 10 11 11 11 11 12 12 12 13 13 13 13 14	3. 44 2. 76 2. 76 2. 30 2. 31 1. 98 1. 99 1. 76 1. 45 1. 45 1. 42 1. 34 1. 31 1. 25 1. 21 1. 17 1. 13 1. 11 1. 06 1. 05 1. 00 0. 95 0. 91 0. 91 0. 87 0. 87 0. 84 0. 83 0. 70 0. 63 0. 71 0. 66 0. 70 0. 63 0. 69 0. 61 0. 68 0. 56 0. 67 0. 54 0. 67 0. 54 0. 67 0. 54 0. 68 0. 43 0. 68 0. 43 0. 68 0. 43 0. 69 0. 43 0. 69 0. 43 0. 69 0. 43 0. 67 0. 54 0. 68 0. 41 0. 69 0. 38 0. 70 0. 36 0. 71 0. 34 0. 73 0. 31 0. 74 0. 28	3. 62 3. 01 2. 91 2. 50 2. 44 2. 15 2. 10 1. 90 1. 85 1. 71 1. 65 1. 56 1. 50 1. 44 1. 38 1. 33 1. 27 1. 25 1. 19 1. 17 1. 11 1. 11 1. 05 1. 05 1. 00 1. 00 0. 95 0. 95 0. 91 0. 91 0. 88 0. 87 0. 85 0. 83 0. 82 0. 80 0. 80 0. 77 0. 78 0. 74 0. 77 0. 71 0. 75 0. 68 0. 74 0. 68 0. 74 0. 68 0. 74 0. 68 0. 73 0. 63 0. 72 0. 60 0. 71 0. 50 0. 71 0. 50 0. 71 0. 50 0. 71 0. 48 0. 71 0. 48 0. 71 0. 48 0. 71 0. 48 0. 71 0. 49 0. 71 0. 40 0. 73 0. 37 0. 74 0. 35 0. 75 0. 32 0. 77 0. 29	3. 80 3. 26 3. 05 2. 69 2. 55 2. 31 2. 20 2. 03 1. 94 1. 82 1. 73 1. 66 1. 57 1. 52 1. 44 1. 41 1. 33 1. 32 1. 24 1. 24 1. 17 1. 17 1. 10 1. 10 1. 05 1. 00 1. 00 0. 96 0. 95 0. 92 0. 90 0. 89 0. 86 0. 86 0. 89 0. 86 0. 89 0. 80 0. 72 0. 79 0. 69 0. 76 0. 64 0. 76 0. 61 0. 75 0. 58 0. 74 0. 52 0. 74 0. 52 0. 74 0. 50 0. 74 0. 42 0. 76 0. 39 0. 76 0. 39 0. 77 0. 33 0. 77 0. 33 0. 77 0. 33 0. 77 0. 33 0. 77 0. 33 0. 77 0. 33	3. 96 3. 49 3. 18 2. 88 2. 66 2. 46 2. 29 2. 16 2. 02 1. 93 1. 81 1. 75 1. 64 1. 61 1. 50 1. 49 1. 39 1. 38 1. 30 1. 30 1. 22 1. 22 1. 15 1. 15 1. 09 1. 09 1. 04 1. 03 1. 00 0. 98 0. 93 0. 93 0. 93 0. 89 0. 90 0. 85 0. 88 0. 81 0. 86 0. 77 0. 84 0. 74 0. 82 0. 70 0. 81 0. 67 0. 80 0. 64 0. 79 0. 61 0. 78 0. 55 0. 77 0. 49 0. 77 0. 46 0. 78 0. 43 0. 78 0. 43 0. 78 0. 40 0. 79 0. 37 0. 80 0. 34 0. 78 0. 43 0. 78 0. 40 0. 79 0. 37 0. 80 0. 34 0. 78 0. 43 0. 78 0. 43 0. 78 0. 43 0. 78 0. 43 0. 78 0. 43 0. 78 0. 43 0. 79 0. 37 0. 80 0. 34 0. 81 0. 31	4. 12 3. 72 3. 31 3. 05 2. 77 2. 61 2. 38 2. 28 2. 10 2. 04 1. 88 1. 84 1. 70 1. 69 1. 56 1. 55 1. 45 1. 44 1. 35 1. 35 1. 27 1. 26 1. 20 1. 19 1. 14 1. 12 1. 08 1. 06 1. 04 1. 01 1. 00 0. 96 0. 97 0. 91 0. 94 0. 87 0. 91 0. 82 0. 89 0. 78 0. 87 0. 75 0. 83 0. 64 0. 82 0. 61 0. 81 0. 57 0. 81 0. 54 0. 80 0. 48 0. 80 0. 48 0. 80 0. 48 0. 81 0. 38 0. 82 0. 35 0. 83 0. 32	4. 26 3. 94 3. 42 3. 22 2. 86 2. 74 2. 47 2. 39 2. 17 2. 13 1. 94 1. 92 1. 76 1. 76 1. 76 1. 76 1. 50 1. 40 1. 39 1. 31 1. 30 1. 24 1. 22 1. 18 1. 15 1. 12 1. 09 1. 08 1. 03 1. 04 0. 97 1. 00 0. 92 0. 97 0. 88 0. 94 0. 83 0. 92 0. 79 0. 90 0. 75 0. 88 0. 71 0. 87 0. 67 0. 88 0. 71 0. 87 0. 67 0. 88 0. 64 0. 85 0. 60 0. 84 0. 56 0. 84 0. 53 0. 83 0. 43 0. 83 0. 43 0. 84 0. 39 0. 84 0. 36 0. 85 0. 63	4. 40 4. 14 3. 53 3. 38 2. 95 2. 87 2. 55 2. 50 2. 24 2. 22 2. 01 1. 82 1. 67 1. 67 1. 54 1. 54 1. 44 1. 43 1. 35 1. 34 1. 28 1. 25 1. 21 1. 18 1. 16 1. 11 1. 11 1. 04 1. 07 0. 99 1. 03 0. 93 1. 00 0. 88 0. 97 0. 79 0. 93 0. 75 0. 91 0. 79 0. 93 0. 75 0. 91 0. 79 0. 93 0. 66 0. 88 0. 63 0. 87 0. 59 0. 86 0. 51 0. 86 0. 44 0. 86 0. 47 0. 86 0. 37 0. 87 0. 58						
	5½	5¾	6	61/4	61/2	6¾	7						
61/2 61/2 7 71/2 71/2 71/2 71/2 81/3 81/3 81/3 81/3 91/3 10/4 10/3 11/3 11/4 11/2 12/2 12/2 12/2 13/3 13/4 13/4 14	4. 52 4. 33 3. 63 3. 52 3. 04 2. 98 2. 62 2. 59 2. 30 2. 29 2. 06 2. 06 1. 87 1. 87 1. 72 1. 71 1. 59 1. 58 1. 48 1. 46 1. 39 1. 36 1. 31 1. 27 1. 125 1. 19 1. 19 1. 125 1. 10 0. 99 1. 06 0. 94 1. 03 0. 88 1. 00 0. 83 0. 98 0. 78 0. 95 0. 73 0. 94 0. 69 0. 92 0. 65 0. 91 0. 61 0. 90 0. 57 0. 89 0. 42 0. 88 0. 42 0. 88 0. 42 0. 88 0. 38 0. 89 0. 34	2. 11 2. 11 1. 92 1. 92 1. 76 1. 75 1. 63 1. 61 1. 52 1. 49 1. 42 1. 38 1. 35 1. 29 1. 28 1. 20 1. 22 1. 13 1. 17 1. 06 1. 13 0. 99 1. 05 0. 82 1. 00 0. 77 0. 98 0. 72 0. 96 0. 68 0. 94 0. 63 0. 93 0. 59 0. 92 0. 55 0. 91 0. 51 0. 91 0. 43 0. 90 0. 39		4. 83 4. 77 3. 87 3. 86 3. 24 3. 24 2. 79 2. 79 2. 46 2. 46 2. 20 2. 19 2. 00 1. 98 1. 83 1. 80 1. 69 1. 64 1. 58 1. 51 1. 48 1. 40 1. 40 1. 30 1. 33 1. 20 1. 27 1. 12 1. 22 1. 04 1. 17 0. 97 1. 13 0. 91 1. 10 0. 85 1. 07 0. 79 1. 04 0. 73 1. 02 0. 68 1. 00 0. 63 0. 98 0. 59 0. 97 0. 54 0. 96 0. 49 0. 95 0. 45 0. 95 0. 41 0. 94 0. 36	4. 91 4. 88 3. 94 3. 93 3. 30 3. 30 2. 84 2. 84 2. 50 2. 49 2. 24 2. 21 2. 03 1. 99 1. 86 1. 81 1. 72 1. 65 1. 61 1. 51 1. 51 1. 39 1. 42 1. 29 1. 35 1. 19 1. 29 1. 11 1. 24 1. 03 1. 19 0. 96 1. 15 0. 89 1. 12 0. 83 1. 09 0. 77 1. 06 0. 71 1. 04 0. 66 1. 02 0. 61 1. 00 0. 56 0. 99 0. 51 0. 98 0. 46 0. 97 0. 41 0. 90 0. 37	4. 97 4. 97 3. 99 3. 99 3. 34 3. 34 2. 88 2. 87 2. 53 2. 51 2. 27 2. 23 2. 06 2. 00 1. 89 1. 81 1. 75 1. 64 1. 62 1. 50 1. 53 1. 38 1. 44 1. 27 1. 37 1. 18 1. 31 1. 09 1. 25 1. 01 1. 21 0. 93 1. 17 0. 86 1. 13 0. 80 1. 10 0. 74 1. 07 0. 68 1. 03 0. 57 1. 01 0. 52 1. 00 0. 47 0. 99 0. 42 0. 98 0. 38	5. 03						

TABLE 5A.

Difference	Difference between the course and first bearing, in points.															
between the course andsecond bearing, in points.	7	4	7	1/2		34		3	8		8		8	34		9
81-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	5.07 4.07 3.41 2.94 2.58 2.31 2.10 1.92 1.78 1.66 1.47 1.40 1.28 1.23 1.19 1.15 1.109 1.07 1.05 1.03	5.06 4.05 3.37 2.88 2.51 1.98 1.78 1.161 1.46 1.34 1.22 1.12 0.95 0.87 0.80 0.73 0.67 0.61 0.55 0.64 0.39	5.10 4.10 3.43 2.95 2.60 2.33 2.11 1.93 1.79 1.67 1.41 1.34 1.29 1.24 1.20 1.16 1.13 1.10 1.08 1.06	5.08 4.06 3.36 2.87 2.49 2.19 1.95 1.58 1.43 1.30 1.19 1.00 0.91 0.83 0.76 0.69 0.63 0.57 0.45 0.40	5.12 4.11 3.44 2.96 2.61 2.34 2.12 1.94 1.80 1.68 1.57 1.49 1.41 1.35 1.29 1.24 1.10 1.16 1.13 1.10	5.06 4.03 3.34 2.84 2.16 2.16 1.92 1.71 1.54 1.39 1.26 0.95 0.87 0.79 0.72 0.65 0.58 0.52 0.41	5.13 4.12 3.44 2.97 2.61 1.80 1.68 1.49 1.41 1.35 1.29 1.25 1.20 1.17 1.13	5.03 3.39 3.30 2.79 2.41 1.87 1.67 1.35 1.22 1.10 1.00 0.91 0.67 0.60 0.53 0.47 0.41	5.12 4.11 3.44 2.961 2.34 2.12 1.94 1.68 1.57 1.49 1.41 1.29 1.24 1.120 1.13 1.10	4.97 3.93 3.24 2.36 2.06 1.82 1.62 1.44 1.30 1.17 1.05 0.95 0.77 0.69 0.62 0.58 0.42	5.10 4.10 3.43 2.95 2.60 2.33 2.11 1.93 1.79 1.67 1.41 1.34 1.29 1.24 1.20 1.16	4.88 3.86 3.17 2.67 2.29 2.00 1.76 1.55 1.38 1.24 1.11 1.00 0.89 0.72 0.64 0.56 0.50 0.43	5.07 4.07 3.41 2.94 2.58 2.31 1.92 1.78 1.66 1.47 1.40 1.34 1.28 1.28 1.19 1.15	4.77 3.76 3.08 2.59 2.22 1.69 1.49 1.32 1.17 1.05 0.93 0.74 0.66 0.58 0.51 0.44	5.03 4.04 3.38 2.91 2.56 2.08 1.91 1.77 1.65 1.39 1.32 1.22 1.27	4.64 3.65 2.98 2.50 2.13 1.84 1.61 1.41 1.25 0.98 0.87 0.77 0.68 0.60 0.52 0.45
	9	4	9	1/2.	9	3/4	1	0	10	14	10	1/4	10	34		1
104 104 104 11 114 112 124 124 124 124 134 134 134 134 134	4.97 3.99 3.34 2.88 2.53 2.27 2.06 1.89 1.75 1.62 1.53 1.44 1.37 1.31 1.25 1.21	4.50 3.52 2.87 2.39 2.04 1.75 1.52 1.33 1.18 1.03 0.91 0.80 0.71 0.62 0.54 0.46	4.91 3.94 3.30 2.84 2.50 2.24 2.03 1.86 1.72 1.61 1.51 1.42 1.35 1.29	4.33 3.38 2.74 2.28 1.93 1.66 1.44 1.25 1.09 0.96 0.84 0.73 0.64 0.55 0.47	4.83 3.87 3.24 2.79 2.46 2.20 2.00 1.83 1.69 1.58 1.48 1.40 1.33 1.27	4.14 3.22 2.61 2.16 1.82 1.56 1.34 1.16 1.01 0.88 0.76 0.66 0.57 0.49	4.74 3.80 3.18 2.74 2.41 2.16 1.96 1.66 1.55 1.46 1.38 1.31	3.94 3.05 2.46 2.03 1.71 1.45 1.24 1.07 0.92 0.80 0.69 0.59 0.50	4.63 3.72 3.11 2.68 2.36 2.11 1.92 1.76 1.63 1.52 1.42 1.35	3.72 2.88 2.31 1.90 1.59 1.34 1.14 0.98 0.84 0.72 0.61 0.52	4.52 3.63 3.04 2.62 2.30 2.06 1.72 1.59 1.48 1.39	3.49 2.69 2.15 1.76 1.46 1.23 1.04 0.88 0.75 0.63 0.53	4.40 3.53 2.95 2.55 2.24 1.82 1.67 1.54 1.44	3.20 2.50 1.98 1.62 1.34 1.11 0.94 0.79 0.66 0.55	4.26 3.42 2.86 2.47 2.17 1.94 1.76 1.62 1.50	3.01 2.30 1.82 1.47 1.21 1.00 0.83 0.69 0.57
	11	1/4	11	11/2	11	13/4	1	2	12	14	12	1/2	19	3/4	1	18
				1												

TABLE 5B.

Difference between			Difference between the course and first bearing.						
the course and second bearing.	20°	220	240	200	28° V	30°	3 2º		
30° 32' 34' 36' 38' 40' 42' 44' 46' 48' 50' 52' 54' 56' 66' 68' 70' 72' 74' 76' 78' 80' 82' 84' 86' 98' 99' 100' 112' 114' 116' 118' 120' 122' 124' 136' 138' 140' 142' 144' 146' 148' 150' 152' 154' 156' 158' 160'	1. 97 0. 98 1. 64 0. 87 1. 41 0. 79 1. 24 0. 73 1. 11 0. 68 0. 64 0. 91 0. 61 0. 84 0. 58 0. 73 0. 56 0. 65 0. 65 0. 65 0. 65 0. 65 0. 65 0. 47 0. 53 0. 46 0. 49 0. 44 0. 44 0. 44 0. 44 0. 44 0. 44 0. 44 0. 44 0. 44 0. 45 0. 35	2. 16 1. 14 1. 80 1. 01 1. 55 0. 91 1. 36 0. 84 1. 21 0. 78 1. 10 0. 73 1. 00 0. 69 0. 92 0. 66 0. 85 0. 64 0. 80 0. 61 0. 75 0. 59 0. 71 0. 57 0. 67 0. 56 0. 64 0. 54 0. 61 0. 53 0. 58 0. 51 0. 56 0. 50 0. 54 0. 49 0. 52 0. 48 0. 50 0. 47 0. 49 0. 47 0. 49 0. 47 0. 49 0. 42 0. 42 0. 42 0. 42 0. 42 0. 41 0. 41 0. 40 0. 40 0. 39 0. 31 0. 38 0. 36 0. 37 0. 35 0. 37 0. 35 0. 37 0. 35 0. 37 0. 35 0. 37 0. 35 0. 37 0. 35 0. 37 0. 35 0. 37 0. 35 0. 39 0. 31 0. 39 0. 30 0. 40 0. 29 0. 41 0. 28 0. 42 0. 27 0. 44 0. 26 0. 45 0. 25 0. 48 0. 24 0. 49 0. 23 0. 50 0. 21 0. 54 0. 20 0. 56 0. 19	2. 34	2. 52	2. 70	2. 88	3. 05 2. 04 2. 55 1. 77 2. 19 1. 58 1. 92 1. 43 1. 71 1. 31 1. 55 1. 22 1. 41 1. 14 1. 30 1. 08 1. 21 1. 03 1. 13 0. 98 1. 06 0. 94 1. 00 0. 90 0. 84 0. 86 0. 81 0. 82 0. 78 0. 76 0. 74 0. 74 0. 72 0. 71 0. 70 0. 67 0. 67 0. 66 0. 65 0. 64 0. 64 0. 62 0. 62 0. 61 0. 61 0. 60 0. 58 0. 55 0. 55 0. 56 0. 56 0. 56 0. 56 0. 56 0. 56 0. 57 0. 58 0. 53 0. 44 0. 56 0. 36 0. 57 0. 36 0. 56 0. 36 0. 57 0. 36 0. 56 0. 36 0. 56 0. 36 0. 57 0. 34 0. 58 0. 32 0. 59 0. 30 0. 60 0. 30 0. 61 0. 29 0. 62 0. 27 0. 64 0. 26 0. 66 0. 25 0. 67 0. 23		

TABLE 5B.

Difference between			Difference be	tween the cours	e and first bearing	ıg.	•	
the course and second bearing.	34°	36°	380	400	420	44°	46°	
44° 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160	3. 22 2. 2-2-2-69 1. 92 2. 31 1. 72 2. 03 1. 55 1. 81 1. 49 1. 22 1. 37 1. 12 1. 03 1. 19 1. 06 1. 19 1. 00 1. 10 1. 10 1. 10 1. 10 1. 10 1. 00 1. 03 1. 03 1. 04 1. 07	3. 39 2. 43 2. 83 2. 10 2. 43 1. 68 2. 13 1. 68 1. 72 1. 42 1. 57 1. 34 1. 1. 1 1. 25 1. 1. 34 1. 18 1. 25 1. 13 1. 1. 1 1. 03 1. 00 0. 95 0. 91 0. 89 0. 85 0. 83 0. 85 0. 83 0. 85 0. 83 0. 85 0. 85 0. 87 0. 79 0. 77 0. 75 0. 73 0. 73 0. 69 0. 69 0. 69 0. 69 0. 60 0. 64 0. 63 0. 61 0. 64 0. 63 0. 65 0. 64 0. 69 0. 59 0. 59 0. 51 0. 059 0. 51 0. 060 0. 54 0. 07 0. 60 0. 08 0. 69 0. 59 0. 51 0. 59 0. 51	0. 62 0. 51 0. 62 0. 50 0. 62 0. 49 0. 62 0. 46 0. 62 0. 45 0. 62 0. 43 0. 63 0. 42 0. 63 0. 40 0. 63 0. 39 0. 64 0. 38 0. 65 0. 36 0. 66 0. 35 0. 66 0. 35 0. 67 0. 32 0. 70 0. 28 0. 71 0. 27	3. 70 2. 84 3. 09 2. 44 2. 66 2. 15 2. 33 1. 93 2. 08 1. 76 1. 88 1. 63 1. 72 1. 52 1. 58 1. 42 1. 47 1. 34 1. 37 1. 27 1. 29 1. 21 1. 21 1. 15 1. 15 1. 10 1. 09 1. 06 1. 04 1. 02 1. 00 0. 98 0. 96 0. 95 0. 93 0. 92 0. 89 0. 89 0. 86 0. 86 0. 84 0. 84 0. 82 0. 82 0. 79 0. 73 0. 73 0. 71 0. 73 0. 71 0. 73 0. 71 0. 72 0. 69 0. 60 0. 66 0. 68 0. 64 0. 68 0. 63 0. 67 0. 61 0. 66 0. 55 0. 65 0. 55 0. 65 0. 55 0. 65 0. 55 0. 65 0. 54 0. 64 0. 49 0. 64 0. 49 0. 66 0. 41 0. 66 0. 41 0. 66 0. 41 0. 66 0. 43 0. 66 0. 44 0. 67 0. 37 0. 68 0. 36 0. 68 0. 36 0. 68 0. 36 0. 68 0. 36 0. 70 0. 27 0. 74 0. 25	$ \begin{vmatrix} 0.70 & 0.35 \\ 0.71 & 0.33 \\ 0.72 & 0.32 \\ 0.73 & 0.30 \\ 0.74 & 0.28 \end{vmatrix} $	4. 00 3. 24 3. 34 2. 77 2. 87 2. 44 2. 52 2. 18 2. 25 1. 98 2. 03 1. 83 1. 85 1. 69 1. 71 1. 58 1. 49 1. 48 1. 41 1. 39 1. 34 1. 31 1. 27 1. 24 1. 22 1. 18 1. 16 1. 13 1. 12 1. 08 1. 07 1. 04 1. 00 0. 97 0. 97 0. 93 0. 93 0. 91 0. 90 0. 88 0. 88 0. 86 0. 85 0. 84 0. 83 0. 82 0. 80 0. 80 0. 78 0. 70 0. 76 0. 77 0. 74 0. 76 0. 71 0. 75 0. 69 0. 74 0. 68 0. 73 0. 66 0. 72 0. 64 0. 72 0. 64 0. 72 0. 69 0. 71 0. 55 0. 70 0. 55 0. 70 0. 55 0. 70 0. 50 0. 70 0. 50 0. 70 0. 50 0. 70 0. 50 0. 70 0. 40 0. 70 0. 40 0. 71 0. 41 0. 70 0. 40 0. 70 0. 43 0. 70 0. 43 0. 71 0. 41 0. 72 0. 38 0. 72 0. 38 0. 73 0. 34 0. 74 0. 32 0. 75 0. 30 0. 76 0. 77 0. 40 0. 70 0. 45 0. 70 0. 45 0. 70 0. 45 0. 70 0. 45 0. 70 0. 43 0. 71 0. 41 0. 72 0. 38 0. 72 0. 38 0. 73 0. 34 0. 74 0. 32 0. 75 0. 30 0. 76 0. 28 0. 77 0. 26	4. 14 3. 46 2. 93 2. 97 2. 61 2. 30 2. 10 1. 92 1. 72 1. 66 1. 53 1. 47 1. 44 1. 40 1. 36 1. 33 1. 28 1. 27 1. 22 1. 21 1. 17 1. 16 1. 12 1. 10 1. 10 1. 00 1. 00 0. 97 0. 94 0. 93 0. 91 0. 90 0. 89 0. 88 0. 87 0. 85 0. 85 0. 85 0. 80 0. 81 0. 77 0. 70 0. 70 0. 70 0. 70 0. 70 0. 70 0. 80 0. 81 0. 77 0. 69 0. 70 0. 70 0. 70 0. 70 0. 70 0. 80 0. 81 0. 77 0. 69 0. 70 0. 70 0. 70 0. 70 0. 70 0. 70 0. 80 0. 81 0. 77 0. 69 0. 70 0. 80 0. 71 0. 70 0. 40 0.	

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TABLE 5B.

Difference between		•			Difference between th		he course and first bearing		ng.					
the course and second bearing.	48	90	50	9 °	5	20	5.	4 0	. 50	30	5.	30	•	0 0
58° 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160	4. 28 3. 57 3. 07 2. 70 2. 17 1. 98 1. 49 1. 40 1. 16 1. 16 1. 17 1. 03 1. 00 0. 97 0. 98 0. 88 0. 83 0. 81 0. 79 0. 75 0. 75 0. 75 0. 76 0. 77 0. 76 0. 77 0. 77 0. 78 0. 79 0. 79 0. 78 0. 77 0. 77 0. 76 0. 77 0. 77 0. 78 0. 79 0. 79 0. 79 0. 79 0. 79 0. 70 0. 70	3. 63 3. 10 2. 71 2. 22 2. 01 1. 86 1. 163 1. 54 1. 32 1. 26 1. 161 1. 107 1. 03 0. 99 0. 98 0. 99 0. 87 0. 72 0. 72 0. 70 0. 68 0. 66 0. 61 0. 57 0. 57 0. 58 0.	4. 41 3. 67 2. 78 2. 24 2. 24 2. 88 1. 75 1. 63 1. 53 1. 130 1. 19 1. 100 1. 06 1. 00 97 0. 92 0. 85 0. 87 0. 85 0. 87 0. 77 0. 78 0. 80 0. 81 0. 82 0. 83 0. 84 0. 85 0. 85 0. 85 0. 85 0. 85 0. 85 0. 85 0. 85 0. 85 0. 77 0. 80 0. 80 0	3. 82 3. 25 52 2. 54 2. 10 1. 94 1. 70 1. 43 1. 30 1. 24 1. 10 1. 06 1. 30 1. 24 1. 10 1. 06 0. 92 0. 88 0. 75 0. 62 0. 63 0. 64 0. 62 0. 62 0. 63 0. 64 0. 62 0. 64 0. 62 0. 63 0. 64 0.	4. 54 3. 79 3. 26 2. 86 2. 55 2. 30 1. 94 1. 68 1. 49 1. 41 1. 34 1. 10 6. 95 0. 91 0. 97 0. 93 0. 84 0. 85 0. 84 0. 80 0. 80 0. 79 0. 79 0. 80 0. 81 0. 82 0. 83 0. 83	4. 01 3. 41 2. 65 2. 39 2. 19 2. 1. 88 1. 76 1. 65 1. 48 1. 41 1. 34 1. 1. 34 1. 1. 04 1. 01 0. 97 0. 84 1. 01 0. 66 0. 62 0. 76 0. 64 0. 62 0. 57 0. 54 0. 44 0. 42 0. 46 0. 38 0.	4. 66 3. 89 3. 34 2. 94 2. 62 1. 53 1. 45 1. 16 1. 16 1. 100 0. 98 0. 95 0. 93 0. 92 0. 89 0. 83 0. 83 0. 81 0. 81 0. 81 0. 82 0. 83 0. 83 0. 83 0. 84	$\begin{array}{c} 4.19\\ 3.55\\ 3.10\\ 2.76\\ 2.49\\ 1.82\\ 1.45\\ 1.31\\ 1.26\\ 1.32\\ 1.45\\ 1.33\\ 1.26\\ 1.15\\ 1.38\\ 1.26\\ 1.02\\ 0.99\\ 0.88\\ 0.85\\ 0.77\\ 0.74\\ 0.69\\ 0.66\\ 0.64\\ 0.61\\ 0.52\\ 0.54\\ 0.43\\ 0.34\\ 0.31\\ 0.29\\ \end{array}$	4. 77 3. 99 3. 43 3. 01 1. 268 2. 42 2. 21 1. 77 1. 66 1. 58 1. 12 1. 100 0. 98 0. 94 1. 15 1. 00 0. 94 0. 91 0. 90 0. 83 0. 83 0. 83 0. 83 0. 83 0. 83 0. 83 0. 83 0. 85 0. 8	4. 36 3. 71 3. 22 2. 58 2. 16 1. 76 1. 65 1. 48 1. 13 1. 08 1. 13 1. 09 0. 93 0. 89 0. 83 0. 80 0. 77 0. 66 0. 64 0. 58 0. 56 0. 54 0. 44 0. 42 0. 42 0. 44 0. 42 0. 44 0. 44 0. 42 0. 44 0. 44	4. 88 4. 08 3. 51 2. 74 2. 248 2. 208 1. 93 1. 1. 70 1. 52 1. 44 1. 38 1. 127 1. 122 1. 18 1. 11 1. 00 0. 98 0. 96 0. 95 0. 93 0. 85 0. 85 0. 85 0. 86 0. 86 0. 86 0. 86	4.53 3.83 3.33 3.33 2.66 2.43 2.236 1.92 1.80 1.70 1.60 1.52 1.44 1.37 1.11 1.05 1.01 0.97 0.93 0.80 0.80 0.74 0.68 0.68 0.63 0.52 0.43 0.52 0.53 0.53 0.53 0.53 0.53 0.53 0.53 0.53	4. 99 4. 17 3. 14 2. 53 1. 98 1. 84 1. 1. 25 1. 25 1. 20 1. 25 1. 20 1. 25 1. 20 1. 20 0. 98 0. 98 0. 99 0. 99 0. 89 0. 87 0. 87 0. 88 0.	$\begin{array}{c} 4.69 \\ 3.96 \\ 3.05 \\ 2.74 \\ 2.197 \\ 1.84 \\ 1.73 \\ 1.54 \\ 1.33 \\ 1.54 \\ 1.106 \\ 0.98 \\ 0.990 \\ 0.87 \\ 0.83 \\ 0.80 \\ 0.71 \\ 0.65 \\ 0.54 \\ 0.54 \\ 0.54 \\ 0.54 \\ 0.38 \\ 0.35 \\ 0.33 \\ 0.30 \end{array}$

TABLE 5B.

Distance of an Object by Two Bearings.

Difference between			Difference	e between th	e course and f	irst bearing.		
the course and second bearing.	620	640	660	680	700	720	740	760
72° 74 76 78 80 82 84 86 88 90 92 94 96 98 100 102 104 106 108 110 112 114	5. 08 4. 84 4. 25 4. 08 3. 65 3. 54 3. 20 3. 13 2. 86 2. 81 2. 58 2. 56 2. 36 2. 34 2. 01 2. 01 1. 88 1. 88 1. 77 1. 76 1. 58 1. 57 1. 50 1. 49 1. 43 1. 41 1. 37 1. 34 1. 32 1. 28 1. 27 1. 22 1. 23 1. 17 1. 19 1. 12 1. 15 1. 02 1. 12 1. 02	5. 18 4. 98 4. 32 4. 19 3. 72 3. 26 2. 91 2. 88 2. 63 2. 61 2. 40 2. 32 2. 21 2. 21 2. 05 2. 05 1. 91 1. 91 1. 80 1. 79 1. 61 1. 59 1. 53 1. 51 1. 46 1. 33 1. 40 1. 33 1. 29 1. 23 1. 25 1. 17 1. 21 1. 12 1. 17 1. 07	5. 26 5. 10 4. 39 4. 30 3. 78 3. 72 3. 31 3. 28 2. 96 2. 94 2. 67 2. 66 2. 44 2. 44 2. 25 2. 25 2. 08 1. 95 1. 94 1. 83 1. 82 1. 72 1. 71 1. 63 1. 61 1. 55 1. 54 1. 42 1. 37 1. 37 1. 30 1. 32 1. 24 1. 27 1. 18 1. 23 1. 12	5. 34 5. 22 4. 46 4. 39 3. 83 3. 80 3. 36 3. 35 3. 00 2. 29 2. 71 2. 71 2. 48 2. 48 2. 28 2. 28 2. 12 2. 11 1. 97 1. 96 1. 85 1. 84 1. 75 1. 72 1. 66 1. 62 1. 58 1. 53 1. 51 1. 45 1. 44 1. 37 1. 39 1. 30 1. 33 1. 24 1. 29 1. 18	5. 41 5. 33 4. 52 4. 48 3. 88 3. 86 3. 41 3. 04 2. 75 2. 75 2. 51 2. 51 2. 31 2. 30 2. 14 2. 13 2. 00 1. 98 1. 88 1. 85 1. 77 1. 73 1. 68 1. 63 1. 60 1. 54 1. 53 1. 45 1. 46 1. 33 1. 45 1. 46 1. 33 1. 35 1. 24	5. 48 5. 42 4. 57 4. 55 3. 93 3. 92 3. 45 3. 45 3. 08 2. 78 2. 54 2. 54 2. 53 2. 34 2. 33 2. 17 2. 15 2. 03 2. 00 1. 90 1. 86 1. 79 1. 63 1. 62 1. 54 1. 54 1. 45 1. 48 1. 37 1. 42 1. 30	5. 54 5. 51 4. 62 4. 61 3. 97 3. 97 3. 49 3. 11 2. 81 2. 86 2. 57 2. 55 2. 36 2. 34 2. 19 2. 16 2. 05 2. 00 1. 92 1. 63 1. 64 1. 54 1. 56 1. 45 1. 50 1. 37	5. 59 5. 57 4. 67 4. 66 4. 01 4. 01 3. 52 3. 14 2. 82 2. 59 2. 36 2. 39 2. 35 2. 21 2. 16 2. 07 2. 01 1. 94 1. 87 1. 83 1. 74 1. 65 1. 53 1. 58 1. 44
116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160	0. 93 0. 67 0. 92 0. 64 0. 91 0. 61 0. 90 0. 58 0. 90 0. 52 0. 89 0. 52 0. 89 0. 41 0. 88 0. 41 0. 88 0. 36 0. 89 0. 36 0. 89 0. 36	1. 11 0. 98 1. 08 0. 94 1. 06 0. 90 1. 04 0. 86 1. 02 0. 82 1. 00 0. 79 0. 98 0. 75 0. 97 0. 72 0. 96 0. 69 0. 95 0. 66 0. 94 0. 63 0. 93 0. 60 0. 92 0. 57 0. 91 0. 51 0. 90 0. 48 0. 90 0. 45 0. 90 0. 39 0. 90 0. 39	1. 16 1. 02 1. 13 0. 98 1. 10 0. 93 1. 08 0. 89 1. 05 0. 85 1. 03 0. 82 1. 02 0. 78 1. 00 0. 74 0. 99 0. 71 0. 97 0. 68 0. 96 0. 64 0. 95 0. 61 0. 94 0. 58 0. 93 0. 55 0. 93 0. 52 0. 92 0. 49 0. 92 0. 46 0. 91 0. 40 0. 91 0. 37 0. 91 0. 34	1. 21 1. 07 1. 18 1. 02 1. 15 0. 97 1. 12 0. 93 1. 09 0. 88 1. 07 0. 84 1. 05 0. 80 1. 03 0. 77 1. 01 0. 73 1. 00 0. 69 0. 99 0. 63 0. 96 0. 59 0. 96 0. 56 0. 97 0. 63 0. 94 0. 47 0. 93 0. 41 0. 93 0. 41 0. 93 0. 38 0. 93 0. 35	1. 26 1. 12 1. 23 1. 06 1. 19 1. 01 1. 16 0. 96 1. 13 0. 92 1. 11 0. 87 1. 09 0. 83 1. 06 0. 79 1. 04 0. 75 1. 03 0. 71 1. 01 0. 68 1. 00 0. 64 0. 99 0. 61 0. 98 0. 57 0. 97 0. 54 0. 96 0. 51 0. 95 0. 48 0. 95 0. 48 0. 94 0. 41 0. 94 0. 41 0. 94 0. 38	1. 18 0. 95 1. 15 0. 90 1. 12 0. 86 1. 10 0. 82 1. 08 0. 77 1. 06 0. 74 1. 04 0. 70 1. 03 0. 66 1. 01 0. 62 1. 00 0. 59 0. 99 0. 55 0. 98 0. 52 0. 97 0. 49 0. 96 0. 42 0. 96 0. 42	1. 38	1. 40 1. 21 1. 35 1. 14 1. 31 1. 08 1. 27 1. 02 1. 23 0. 97 1. 20 0. 92 1. 17 0. 87 1. 14 0. 82 1. 12 0. 78 1. 10 0. 74 1. 06 0. 65 1. 05 0. 62 1. 03 0. 58 1. 02 0. 54 1. 01 0. 50 1. 00 0. 47 0. 99 0. 43

TABLE 5B.

Distance of an Object by Two Bearings.

Difference between			Differenc	e between the	course and fi	rst bearing.		
the course and second bearing.	780	800	820	* 84°	86°	880	90∘	920
88° 90 92 94 96 98 100 102 104 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160	5. 63 5. 63 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 4. 70 7. 70	4. 07 4. 06 3. 57 3. 55 3. 19 3. 16 2. 88 2. 84 2. 63 2. 57 2. 42 2. 35 2. 25 2. 16 2. 10 2. 00 1. 97 1. 85 1. 86 1. 72 1. 76 1. 61 1. 68 1. 51 1. 60 1. 41 1. 53 1. 33 1. 47 1. 25 1. 42 1. 18 1. 37 1. 11 1. 33 1. 04 1. 29 0. 98 1. 19 0. 98 1. 19 0. 83 1. 16 0. 78 1. 14 0. 73 1. 12 0. 69 1. 10 0. 69 1. 10 0. 56 1. 05 0. 52 1. 04 0. 49 1. 02 0. 45 1. 01 0. 41 1. 01 0. 38	4. 76 4. 75 4. 09 4. 07 3. 59 3. 56 3. 20 3. 16 2. 90 2. 83 2. 64 2. 56 2. 43 2. 26 2. 15 2. 11 1. 98 1. 87 1. 77 1. 59 1. 68 1. 49 1. 54 1. 31 1. 48 1. 23 1. 43 1. 15 1. 38 1. 02 1. 29 0. 96 1. 26 0. 90 1. 22 0. 85 1. 19 0. 80 1. 17 0. 75 1. 14 0. 70 1. 12 0. 66 1. 10 0. 62 1. 08 0. 57	4. 78 4. 76 4. 11 4. 07 3. 61 3. 55 3. 22 3. 15 2. 91 2. 82 2. 65 2. 55 2. 45 2. 33 2. 27 2. 13 2. 12 1. 96 1. 99 1. 82 1. 88 1. 69 1. 78 1. 57 1. 62 1. 37 1. 55 1. 28 1. 48 1. 20 1. 43 1. 13 1. 38 1. 06 1. 34 0. 99 1. 30 0. 93 1. 26 0. 88 1. 23 0. 77 1. 17 0. 72 1. 15 0. 67 1. 13 0. 63 1. 11 0. 59 1. 07 0. 50 1. 06 0. 46 1. 05 0. 43 1. 05 0. 43	2. 66 2. 53 2. 45 2. 31 2. 28 2. 11 2. 12 1. 94 2. 00 1. 79 1. 88 1. 66 1. 78 1. 54 1. 70 1. 44 1. 55 1. 26 1. 49 1. 17 1. 44 1. 10 1. 39 1. 08 1. 34 0. 97 1. 30 0. 90 1. 27 0. 85 1. 23 0. 79 1. 20 0. 74 1. 18 0. 69 1. 15 0. 64 1. 13 0. 60 1. 11 0. 55 1. 09 0. 51 1. 08 0. 47 1. 06 0. 43 1. 05 0. 39	5. 76 5. 70 4. 81 4. 73 4. 13 4. 04 3. 63 3. 52 3. 23 3. 11 2. 92 2. 78 2. 67 2. 51 2. 46 2. 28 2. 28 2. 08 2. 13 1. 91 2. 00 1. 76 1. 89 1. 63 1. 79 1. 52 1. 70 1. 41 1. 62 1. 31 1. 55 1. 23 1. 49 1. 14 1. 44 1. 07 1. 39 1. 00 1. 34 0. 93 1. 27 0. 82 1. 24 0. 76 1. 21 0. 71 1. 18 0. 66 1. 13 0. 57 1. 11 0. 52 1. 09 0. 48 1. 08 0. 44 1. 06 0. 40 1. 05 0. 36	4. 13 4. 01 3. 63 3. 49 3. 24 3. 08 2. 92 2. 75 2. 67 2. 48 2. 46 2. 25 2. 28 2. 05 2. 13 1. 88 2. 00 1. 73 1. 89 1. 60 1. 79 1. 48 1. 70 1. 38 1. 62 1. 28 1. 56 1. 19 1. 44 1. 04 1. 39 0. 97 1. 35 0. 97 1. 35 0. 97 1. 24 0. 73 1. 21 0. 67 1. 18 0. 62 1. 15 0. 58 1. 13 0. 53	3. 23 3. 04 2. 92 2. 71 2. 67 2. 44 2. 46 2. 21 2. 28 2. 01 2. 13 1. 84 2. 00 1. 70 1. 89 1. 56 1. 79 1. 45 1. 70 1. 34 1. 62 1. 24 1. 55 1. 16 1. 49 1. 07 1. 39 0. 93 1. 34 0. 86 1. 30 0. 80 1. 27 0. 76 1. 24 0. 69 1. 21 0. 64 1. 18 0. 59 1. 15 0. 54 1. 13 0. 45 1. 10 0. 45 1. 10 0. 45
	94°	96°	980	100°	102°	104°	106°.	108°
104° 106 108 110 112 114 116 118 120 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160	1. 70 1.30 1. 62 1. 20 1. 55 1. 12 1. 49 1. 04 1. 44 0. 96 1. 39 0. 89 1. 34 0. 83 1. 30 0. 77 1. 27 0. 71 1. 23 0. 65 1. 18 0. 55 1. 15 0. 50 1. 13 0. 46 1. 13 0. 46	2. 12 1. 76 1. 99 1. 61 1. 88 1. 48 1. 78 1. 36 1. 69 1. 26 1. 62 1. 16 1. 55 1. 07 1. 49 0. 99 1. 43 0. 92 1. 38 0. 85 1. 34 0. 79 1. 30 0. 73 1. 26 0. 67 1. 23 0. 61 1. 20 0. 56 1. 17 0. 51 1. 15 0. 47	2. 26 1. 87 2. 11 1. 71 1. 98 1. 56 1. 87 1. 43 1. 77 1. 32 1. 68 1. 21 1. 61 1. 12 1. 54 1. 03 1. 48 0. 95 1. 43 0. 88 1. 38 0. 81 1. 33 0. 75 1. 29 0. 69 1. 26 0. 63 1. 22 0. 57 1. 19 0. 52 1. 17 0. 47 1. 14 0. 43	2. 25 1, 82 2. 10 1, 65 1. 97 1, 51 1. 86 1, 38 1. 76 1, 27 1. 68 1, 16 1. 60 1, 07 1. 53 0, 98 1. 47 0, 91 1. 42 0, 83 1. 37 0, 70 1. 29 0, 64 1. 25 0, 59 1. 22 0, 53 1. 19 0, 48 1. 16 0, 44	2. 08 1. 60 1. 96 1. 45 1. 85 1. 33 1. 75 1. 22 1. 66 1. 11 1. 59 1. 02 1. 52 0. 94 1. 46 0. 86 1. 41 0. 79 1. 36 0. 72 1. 32 0. 66 1. 28 0. 60 1. 24 0. 54 1. 21 0. 44 1. 18 0. 44	2. 84 2. 35 2. 59 2. 10 2. 39 1. 88 2. 21 1. 70 2. 07 1. 54 1. 94 1. 40 1. 83 1. 27 1. 74 1. 16 1. 65 1. 06 1. 58 0. 97 1. 51 0. 89 1. 45 0. 81 1. 35 0. 67 1. 31 0. 61 1. 27 0. 56 1. 23 0. 50 1. 20 0. 45	3. 11 2. 58 2. 81 2. 27 2. 57 2. 02 2. 36 1. 81 2. 19 1. 63 2. 05 1. 47 1. 92 1. 34 1. 81 1. 21 1. 72 1. 10 1. 64 1. 01 1. 56 0. 92 1. 50 0. 84	4. 57 3. 96 3. 93 3. 33 3. 45 2. 86 3. 08 2. 49 2. 78 2. 19 2. 54 1. 94 2. 34 1. 74 2. 17 1. 56 2. 03 1. 41 1. 90 1. 27 1. 79 1. 15 1. 70 1. 05 1. 62 0. 95 1. 48 0. 78 1. 42 0. 71 1. 37 0. 64 1. 32 0. 52 1. 24 0. 47

Distance of an Object by Two Bearings.

Difference between the course			Difference b	etween the cours	se and first beari	ng.	
and second bearing.	110°	112°	114°	116°	1180	120°	1220
120° 122 124 126 128 130 132 134 136 138 140 142 144 146 148 150 152 154 156 158 160	5. 41 4. 63 4. 52 3. 83 3. 88 3. 22 3. 41 2. 76 3. 04 2. 44 2. 75 2. 10 2. 51 1. 88 2. 13 1. 66 2. 14 1. 44 2. 00 1. 35 1. 88 1. 22 1. 60 0. 85 1. 53 0. 83 1. 46 0. 75 1. 40 0. 56 1. 35 0. 56 1. 31 0. 55 1. 31 0. 55 1. 23 0. 42	3 5. 34 4. 53 2 4. 46 3. 70 3 3. 83 3. 10 3 3. 60 2. 30 5 2. 71 2. 01 5 2. 48 1. 78 9 2. 28 1. 58 9 2. 28 1. 58 1. 27 1. 27 1. 85 1. 14 1. 75 1. 03 1. 66 0. 93 1. 58 0. 84 1. 51 0. 75 5 1. 44 0. 68 1. 39 0. 61 1. 133 0. 54 1. 29 0. 48	5. 26 4. 36 4. 39 3. 55 3. 78 2. 98 3. 31 2. 54 2. 96 2. 20 2. 67 1. 92 2. 44 1. 69 2. 25 1. 50 2. 08 1. 34 1. 95 1. 20 1. 83 1. 07 1. 72 0. 96 1. 63 0. 87 1. 55 0. 78 1. 48 0. 70 1. 42 0. 62 1. 37 0. 56 1. 32 0. 49 1. 27 0. 43	5. 18 4. 19 4. 32 3. 41 3. 72 2. 85 3. 26 2. 42 2. 91 2. 09 2. 63 1. 83 2. 40 1. 61 2. 21 1. 42 2. 05 1. 26 1. 91 1. 13 1. 80 1. 01 1. 70 0. 90 1. 61 0. 80 1. 53 0. 72 1. 46 0. 64 1. 40 0. 57 1. 34 0. 50 1. 29 0. 44	5. 08 4. 01 4. 25 3. 25 3. 65 2. 71 3. 20 2. 30 2. 86 1. 98 2. 58 1. 73 2. 36 1. 52 2. 17 1. 34 2. 01 1. 18 1. 88 1. 05 1. 77 0. 94 1. 67 0. 83 1. 58 0. 74 1. 50 0. 66 1. 43 0. 58 1. 37 0. 51 1. 32 0. 45	4. 99 3. 82 4. 17 3. 10 3. 58 2. 57 3. 14 2. 18 2. 80 1. 88 2. 53 1. 63 2. 31 1. 42 2. 13 1. 25 1. 98 1. 10 1. 84 0. 98 1. 73 0. 87 1. 63 0. 77 1. 55 0. 68 1. 47 0. 60 1. 41 0. 53 1. 35 0. 46	4. 88 3. 63 4. 08 2. 93 3. 51 2. 44 3. 08 2. 06 2. 74 1. 76 2. 48 1. 53 2. 26 1. 33 2. 08 1. 17 1. 93 1. 03 1. 81 0. 90 1. 70 0. 80 1. 60 0. 70 1. 52 0. 62 1. 44 0. 54 1. 38 0. 47
	1240	1260	128°	130°	1320	134°	136°
134° 136 138 140 142 144 146 148 150 152 154 156 158 160	4. 77 3. 43 3. 99 2. 77 3. 43 2. 29 3. 01 1. 93 2. 68 1. 65 2. 42 1. 42 2. 21 1. 24 2. 04 1. 08 1. 89 0. 95 1. 77 0. 83 1. 66 0. 63 1. 48 0. 56 1. 41 0. 48	4.66 3.23 3.89 2.60 3.34 2.15 2.94 1.81 2.62 1.54 2.37 1.32 2.16 1.14 1.99 0.99 1.85 0.87 1.72 0.76 1.62 0.66 1.53 0.57	4. 54 3. 04 3. 79 2. 44 3. 26 2. 01 2. 86 1. 68 2. 55 1. 43 2. 30 1. 22 2. 10 1. 05 1. 94 0. 91 1. 80 0. 79 1. 68 0. 68 1. 58 0. 59 1. 49 0. 51	4. 41 2. 84 3. 63 2. 27 3. 17 1. 86 2. 78 1. 55 2. 48 1. 31 2. 24 1. 12 2. 04 0. 96 1. 88 0. 83 1. 75 0. 71 1. 63 0. 61 1. 53 0. 52	4. 28 2. 63 3. 57 2. 10 3. 07 1. 72 2. 70 1. 43 2. 40 1. 20 22. 17 1. 02 1. 98 0. 87 1. 83 0. 74 1. 70 0. 64 1. 58 0. 54	4. 14 2. 43 3. 46 1. 93 2. 97 1. 58 2. 61 1. 30 2. 33 1. 09 2. 10 0. 92 1. 92 0. 78 1. 77 0. 66 1. 64 0. 56	4.00 2.24 3.34 1.77 2.87 1.44 2.52 1.18 2.25 0.99 2.03 0.83 1.85 0.69 1.71 0.58
148° 150 152 154 156 158 160	3. 85 2. 04 3. 22 1. 61 2. 77 1. 30 2. 43 1. 06 2. 17 0. 88 1. 96 0. 73 1. 79 0. 61	3. 70 1. 85 3. 09 1. 45 2. 66 1. 16 2. 33 0. 95 2. 08 0. 78	3. 55	3. 38 1. 48 2. 83 1. 15 2. 43 0. 91 2. 13 0. 73	3. 22 1. 31 2. 69 1. 01 2. 31 0. 79	3.05 1.14 2.55 0.87	2.88 0.98

 ${\bf TABLE~6.}$ Distance of Visibility of Objects at Sea.

leight, feet.	Nautical miles.	Statute miles.	Height, feet.	Nautical miles.	Statute miles.	Height, feet.	Nautical miles.	Statute miles.
1	1.1	1.3	100	11.5	13. 2	. 760	31. 6	36. 4
2	1.7	1.9	105	11.7	13.5	780	32.0	36. 9
3	2.0	$\frac{1.3}{2.3}$	110	12.0	13.8	800	32.4	37. 3
4	2. 3	$\frac{2.3}{2.6}$	115	12.3	14.1	820	32. 8	37.8
5	$\frac{2.3}{2.5}$	2. 0	120	12. 6	14. 5	840	33. 2	38. 3
6	$\begin{bmatrix} 2.3 \\ 2.8 \end{bmatrix}$	3.2	$\frac{120}{125}$	$12.0 \\ 12.9$	14. 8	860	33.6	38. 7
7	$\begin{bmatrix} 2.8 \\ 2.9 \end{bmatrix}$	3.2 3.5	130	12. 9	15. 1	880	34.0	39. 2
.8	$\begin{bmatrix} 2.9 \\ 3.1 \end{bmatrix}$	$\frac{3.5}{3.7}$	135	13. 1	15. 1	900	34.4	39. 2
$\begin{bmatrix} 8 \\ 9 \end{bmatrix}$	$\begin{bmatrix} 3.1 \\ 3.5 \end{bmatrix}$	4.0	140	13. 3	15. 5 15. 6	900	34. 4	40.0
	$\begin{bmatrix} 3.5 \\ 3.6 \end{bmatrix}$	$\frac{4.0}{4.2}$	140	13. 6	15. 5 15. 9	920	34. 7 35. 2	40.0
10		4. 2 4. 4	$\begin{array}{c c} 145 \\ 150 \end{array}$	13. 8 14. 1	15. 9 16. 2	940	35. 2 35. 5	40. 5
11	3.8				16. 2 16. 7	960	35. 5	40.9
12	4.0	4.6	160 170	14.5	$16.7 \\ 17.2$	1	35. 9 36. 2	41. 3
13	4.2	4.8	170	14.9		1,000		
14	4.3	4.9	180	15.4	17. 7	1,100	38.0	43. 8 45. 6
15	4.4	$\frac{5.1}{5.2}$	190	15.8	$\frac{18.2}{18.7}$	1,200	39.6	45. 6
16	4.6	5.3	200	16.2	18.7	1,300	41.3	47.6
17	4.7	5.4	210	16.6	19.1	1,400	42.9	49.4
18	4.9	5.6	220	17.0	19.6	1,500	44.4	51.1
19	5.0	5,8	230	17.4	20.0	1,600	45.8	52.8
20	5.1	5.9	240	17.7	20.4	1,700	47.2	54.4
21	5.3	6.1	250	18.2	20.9	1,800	48.6	56.0
22	5.4	6.2	260	18.5	21.3	1,900	. 49. 9	57.5
23	5.5	6.3	270	18.9	21.7	2,000	51.2	59.0
24	5.6	6.5	280	19.2	22. 1	2, 100	52.5	60.5
25	5.7	6.6	290	19.6	22.5	2.200	53.8	61.9
26	5.8	6.7	300	19.9	22.9	2, 300	55.0	63.3
27	6.0	6.9	310	20.1	23. 2	2,400	56. 2	64.7
28	6.1	7.0	320	20.5	23.6	2,500	57.3	66.0
29	6.2	7.1	330	20.8	24.0	2,600	58.5	67.3
30	6.3	7.2	340	21.1	24.3	2,700	59.6	68.6
31	6.4	7. 3	350	21.5	24. 7	2,800	60.6	69.8
32	6.5	7.5	360	21.7	25.0	2,900	61.8	71.1
33	6.6	7.6	370	22.1	25. 4	3,000.	62.8	72.3
34	6.7	7.7	380	22:3	25.7	3, 100	63.8	73.5
35	6.8	7.8	390	22.7	26. 1	3, 200	64.9	74.7
36	6.8	7.8	400	22. 9	26. 4	3,300	65.9	75. 9
36	6.9	8.0	410	23. 2	26. 7	3,400	66.9	77.0
38	7.0	8. 0 8. 1	420	23. 5	27.1	3,500	67.8	78.1
38	7.0	8.1	420	23.8	27. 4	3,600	68.8	79. 2
40	7.1	8.2	440	23. 8	27. 4	3,700	69.7	80.3
40	7.2	8. 3 8. 4	450	24.1	28.0	3, 700	70.7	81.4
		8. 4 8. 5	460	24. 3 24. 6	$28.0 \\ 28.3$	3, 900	71.6	82.4
42	7.4	8. 5 8. 7	460	24. 6	28. 3 28. 6	4,000	72.5	83.5
43	7.5			24. 8 25. 1	28. 6 28. 9	4,000	73.4	84.5
44	7.6	8.8	480		28. 9 29. 2		73.4	84. 5 85. 6
45	7.7	8.9	490	25.4		4,200		85. 6 86. 6
46	7.8	9.0	500	25.6	29.5	4,300	75.2	
47	7.9	9.0	520	26.1	30. 1	4,400	76.1	87. 6
48	7.9	9.1	540	26. 7	30.7	4,500	76.9	88.5
49	8.0	9.2	560	27.1	31.2	4,600	77.7	89.5
50	8.1	9.3	580	27.6	31.8	4,700	78.6	90.5
55	8.5	9.8	600	28.0	32.3	4,800	79.4	91.4
60	8.9	10.2	620	28.6	32. 9	4,900	80.2	92.4
65	9.2	10.6	640	29.0	33.4	5,000	81.0	93.3
70	9.6	11.0	660	29.4	33.9	6,000	88.8	102. 2
75	9.9	11.4	680	29.9	34.4	7,000	96.0	110.5
80	10.3	11.8	700	30.3	34.9	8,000	102.6	118.1
85	10.6	12. 2	720	30.7	35. 4	9,000	108.7	125. 2
90	10.9	12.5	740	31.1	35.9	10,000	114.6	132.0
95	11.2	12.9					1	

For converting Arc into Time, and the reverse.

<u></u>			For c	onverun	g Arc in	w rine,	and the i	everse.			
0	н. м.	0	н. м.	0	н. м.	0	н. м.	0	н. м.	0	н. м.
′	м. s.	′	M. S.	,	M. S.	,	M. S.		M. S.		M. S.
"	S. 50	"	S. 60	' "	S. ಕ್ರ		S. 📆		S. 50		S. 50
1 2 3 4 5 6 7 8 9 10 11 12 13	0 4 0 8 0 12 0 16, 0 20 0 24 0 32 0 36 0 40 0 44 0 48 0 52	61 62 63 64 65 66 67 68 69 70 71 72 73	4 4 4 8 4 12 4 16 4 20 4 24 4 28 4 36 4 40 4 44 4 8 4 52 4 56 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	121 122 123 124 125 126 127 128 129 130 131 132	8 4 8 8 8 12 8 16 8 20 - 8 24 8 28 8 32 8 36 8 40 - 8 44 8 48 8 52 8 52	181 182 183 184 185 186 187 188 189 190 191 192 193	12 4 12 8 12 12 12 16 12 20 12 24 12 28 12 32 12 36 12 40 12 44 12 48 12 52 12 52	241 242 243 244 245 246 247 248 249 250 251 252 253 254	16 4 16 8 16 12 16 16 16 20 16 24 16 32 16 36 16 40 16 44 16 48 16 52 16 56	301 302 303 304 305 306 307 308 309 310 311 312 313 314	20 4 20 8 20 12 20 16 20 20 20 24 20 28 20 32 20 36 20 40 20 44 20 44 20 45 20 52 20 56
14 15= 16 17 18 19 20	$\begin{array}{cccc} 1 & 4 \\ 1 & 8 \\ 1 & 12 \\ 1 & 16 \\ 1 & 20 \\ \end{array}$	74 75 76 77 78 79 80	4 56 5 0 5 4 5 8 5 12 5 16 5 20	134 135 136 137 138 139 140	8 56 9 0 9 4 9 8 9 12 9 16 9 20	194 195 196 197 198 199 200	13 0 13 4 13 8 13 12 13 16 13 20	255 256 257 258 259 260	17 0 17 4 17 8 17 12 17 16 17 20	315 316 317 318 319 320	$egin{array}{cccc} 21 & 0 & \\ 21 & 4 & \\ 21 & 8 & \\ 21 & 12 & \\ 21 & 16 & \\ 21 & 20 & \\ \end{array}$
21 22 23 24 25 26 27 28 29 30	1 24 1 28 1 32 1 36 1 40 1 44 1 48 1 52 1 56 2 0	81 82 83 84 85 86 87 88 89 90	5 24 5 28 5 32 5 36 5 40 5 44 5 48 5 52 5 56 6 0	141 142 143 144 145 146 147 148 149 150	9 24 9 28 9 32 9 36 9 40 9 44 9 48 9 52 9 56 10 0	201 202 203 204 205 206 207 208 209 210	13 24 13 28 13 32 13 36 13 40 13 44 13 48 13 52 13 56 14 0	261 262 263 264 265 266 267 268 269 270	17 24 17 28 17 32 17 36 17 40 17 44 17 48 17 52 17 56 18 0	321 322 323 324 325 326 327 328 329 330	21 24 21 28 21 32 21 36 21 40 21 44 21 48 21 52 21 56 22 0
31 32 33 34 35 36 37 38 39 40	2 4 2 8 2 12 2 16 2 20 2 24 2 28 2 32 2 36 2 40	91 92 93 94 95 96 97 98 99	6 4 6 8 6 12 6 16 6 20 6 24 6 28 6 32 6 36 6 40	151 152 153 154 155 156 157 158 159 160	10 4 10 8 10 12 10 16 10 20 10 24 10 28 10 32 10 36 10 40	211 212 213 214 215 216 217 218 219 220	14 4 14 8 14 12 14 16 14 20 14 24 14 28 14 32 14 36 14 40	271 272 273 274 275 276 277 278 279 280	18 4 18 8 18 12 18 16 18 20 18 24 18 28 18 32 18 36 18 40	331 332 333 334 335 336 337 338 339 340	22 4 22 8 22 12 22 16 22 20 22 24 22 28 22 32 22 36 22 40
41 42 43 44 45 46 47 48 49 50	2 44 2 48 2 52 2 56 3 0 3 4 3 8 3 12 3 16 3 20	101 102 103 104 105 106 107 108 109 110	6 44 6 48 6 52 6 56 7 0 7 4 7 12 7 16 7 20	161 162 163 164 165 166 167 168 169	10 44 10 48 10 52 10 56 11 0 11 4 11 8 11 12 11 16 11 20	230	14 44 14 48 14 52 14 56 15 0 15 4 15 18 15 12 15 16	281 282 283 284 285 286 287 288 289 290	18 44 18 48 18 52 18 56 19 0 19 4 19 8 19 12 19 16	341 342 343 344 345 346 347 348 349 350	22 44 22 48 22 52 22 56 23 0 23 4 23 8 23 12 23 16 23 20
51 52 53 54 55 56 57 58 59 60	3 24 3 28 3 32 3 36 3 40 3 44 3 48 3 52 3 56 4 0	111 112 113 114 115 116 117 118 119 120	7 24 7 28 7 32 7 36 7 40 7 44 7 48 7 52 7 56 8 0	171 172 173 174 175 176 177 178 179 180	11 24 11 28 11 32 11 36 11 40 11 44 11 48 11 52 11 56 12 0	231 232 233 234 235 236 237 238 239 240	15 24 15 28 15 32 15 36 15 40 15 48 15 52 15 56 16 0	291 292 293 294 295 296 297 298 299 300	19 24 19 28 19 32 19 36 19 40 19 44 19 48 19 52 19 56 20 0	351 352 353 354 355 356 357 358 359 360	23 24 23 28 23 32 23 36 23 40 23 44 23 48 23 52 23 56 24 0

Norm.—When turning seconds of arc into time, and vice versa, it should be remembered that the fractions are sixtieths; thue, the value in time of 42" is not 2.48, but 2.48.—2.8.

15

2 1

TABLE 8.

Sidereal into Mean Solar Time.

eal.			То	be subtracted	from a sider	eal time inter	val.			
Sidereal	От	1h	2h	3h	4h	5h	6h	7h	For	seconds.
m. 0 1 2 3	m. s. 0 0.000 0 0.164 0 0.328 0 0.491	m. s. 0 9.830 0 9.993 0 10.157 0 10.321	m. s. 0 19.659 0 19.823 0 19.987 0 20.151	m. s. 0 29.489 0 29.653 0 29.816 0 29.980	m. s. 0 39.318 0 39.482 0 39.646 0 39.810	m. s. 0 49.148 0 49.312 0 49.475 0 49.639	m. s. 0 58.977 0 59.141 0 59.305 0 59.469	m. s. 1 8.807 1 8.971 1 9.135 1 9.298	ε. 1 2 3	8. 0.003 .005 .008
5 6 7 8 9	0 0.655 0 0.819 0 0.983 0 1.147 0 1.311 0 1.474	0 10.485 0 10.649 0 10.813 0 10.976 0 11.140 0 11.304	0 20. 314 0 20. 478 0 20. 642 0 20. 806 0 20. 970 0 21. 134	0 30.144 0 30.308 0 30.472 0 30.635 0 30.799 0 30.963	0 39.974 0 40.137 0 40.301 0 40.465 0 40.629 0 40.793	0 49. 803 0 49. 967 0 50. 131 0 50. 295 0 50. 458 0 50. 622	0 59.633 0 59.796 0 59.960 1 0.124 1 0.288 1 0.452	$\begin{array}{c cccc} 1 & 9.462 \\ \hline 1 & 9.626 \\ 1 & 9.790 \\ 1 & 9.954 \\ 1 & 10.118 \\ 1 & 10.281 \\ \end{array}$	$ \begin{array}{r} 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \end{array} $.011 .014 .016 .019 .022 .025
10 11 12 13 14	0 1.638 0 1.802 0 1.966 0 2.130 0 2.294	0 11.468 0 11.632 0 11.795 0 11.959 0 12.123	0 21. 297 0 21. 461 0 21. 625 0 21. 789 0 21. 953	0 31. 127 0 31. 291 0 31. 455 0 31. 618 0 31. 782	0 40.956 0 41.120 0 41.284 0 41.448 0 41.612	0 50.786 0 50.950 0 51.114 0 51.278 0 51.441	1 0.616 1 0.779 1 0.943 1 1.107 1 1.271	1 10.445 1 10.609 1 10.773 1 10.937 1 11.100	$ \begin{array}{r} 10 \\ 11 \\ 12 \\ 13 \\ 14 \end{array} $. 027 . 030 . 033 . 035 . 038
15 16 17 18 19 20	0 2. 457 0 2. 621 0 2. 785 0 2. 949 0 3. 113 0 3. 277	0 12. 287 0 12. 451 0 12. 615 0 12. 778 0 12. 942 0 13. 106	0 22. 117 0 22. 280 0 22. 444 0 22. 608 0 22. 772 0 22. 936	0 31. 946 0 32. 110 0 32. 274 0 32. 438 0 32. 601 0 32. 765	0 41.776 0 41.939 0 42.103 0 42.267 0 42.431 0 42.595	0 51.605 0 51.769 0 51.933 0 52.097 0 52.260 0 52.424	$\begin{array}{cccc} 1 & 1.435 \\ 1 & 1.599 \\ 1 & 1.762 \\ 1 & 1.926 \\ 1 & 2.090 \\ \hline 1 & 2.254 \end{array}$	1 11. 264 1 11. 428 1 11. 592 1 11. 756 1 11. 920 1 12. 083	$ \begin{array}{r} 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ \hline 20 \end{array} $. 041 . 044 . 046 . 049 . 052
21 22 23 24 25	0 3.440 0 3.604 0 3.768 0 3.932 0 4.096	0 13. 270 0 13. 434 0 13. 598 0 13. 761 0 13. 925	0 23. 099 0 23. 263 0 23. 427 0 23. 591 0 23. 755 0 23. 919	0 32. 929 0 33. 093 0 33. 257 0 33. 420 0 33. 584	0 42.759 0 42.922 0 43.086 0 43.250 0 43.414	0 52. 588 0 52. 752 0 52. 916 0 53. 080 0 53. 243	1 2.418 1 2.582 1 2.745 1 2.909 1 3.073	1 12. 247 1 12. 411 1 12. 575 1 12. 739 1 12. 903	21 22 23 24 25	. 057 . 060 . 063 . 066 . 068
26 27 28 29 30 31	$\begin{array}{c} 0 \ 4.259 \\ 0 \ 4.423 \\ 0 \ 4.587 \\ 0 \ 4.751 \\ \hline 0 \ 4.915 \\ 0 \ 5.079 \end{array}$	0 14. 089 0 14. 253 0 14. 417 0 14. 581 0 14. 744 0 14. 908	0 24. 082 0 24. 246 0 24. 410 0 24. 574 0 24. 738	0 33. 748 0 33. 912 0 34. 076 0 34. 240 0 34. 403 0 34. 567	0 43.578 0 43.742 0 43.905 0 44.069 0 44.233 0 44.397	0 53. 407 0 53. 571 0 53. 735 0 53. 899 0 54. 063 0 54. 226	1 3. 237 1 3. 401 1 3. 564 1 3. 728 1 3. 892 1 4. 056	1 13.066 1 13.230 1 13.394 1 13.558 1 13.722 1 13.886	$ \begin{array}{r} 26 \\ 27 \\ 28 \\ \hline 29 \\ \hline 30 \\ 31 \end{array} $. 071 . 074 . 076 . 079 . 082 . 085
$ \begin{array}{r} 32 \\ 33 \\ 34 \\ \hline 35 \\ 36 \\ \end{array} $	0 5. 242 0 5. 406 0 5. 570 0 5. 734 0 5. 898	0 15. 072 0 15. 236 0 15. 400 0 15. 563 0 15. 727	0 24. 902 0 25. 065 0 25. 229 0 25. 393 0 25. 557	0 34. 731 0 34. 895 0 35. 059 0 35. 223 0 35. 386	0 44. 561 0 44. 724 0 44. 888 0 45. 052 0 45. 216	0 54. 390 0 54. 554 0 54. 718 0 54. 882 0 55. 046	1 4. 220 1 4. 384 1 4. 547 1 4. 711 1 4. 875	1 14. 049 1 14. 213 1 14. 377 1 14. 541 1 14. 705	$ \begin{array}{r} 32 \\ 33 \\ \hline 34 \\ \hline 35 \\ 36 \end{array} $. 087 . 090 . 093 . 096 . 098
37 38 39 40 41	0 6. 062 0 6. 225 0 6. 389 0 6. 553 0 6. 717	0 15. 891 0 16. 055 0 16. 219 0 16. 383 0 16. 546	0 25. 721 0 25. 885 0 26. 048 0 26. 212 0 26. 376	0 35. 550 0 35. 714 0 35. 878 0 36. 042 0 36. 206	0 45. 380 0 45. 544 0 45. 707 0 45. 871 0 46. 035	0 55. 209 0 55. 373 0 55. 537 0 55. 701 0 55. 865	1 5.039 1 5.203 1 5.367 1 5.530 1 5.694	1 14. 868 1 15. 032 1 15. 196 1 15. 360 1 15. 524	$ \begin{array}{r} 37 \\ 38 \\ \hline 39 \\ \hline 40 \\ 41 \\ \hline 42 \\ \end{array} $. 101 . 104 . 106 . 109 . 112
$ \begin{array}{r} 42 \\ 43 \\ \hline 44 \\ \hline 45 \\ 46 \\ 47 \\ \end{array} $	0 6.881 0 7.045 0 7.208 0 7.372 0 7.536 0 7.700	0 16. 710 0 16. 874 0 17. 038 0 17. 202 0 17. 366 0 17. 529	0 26.540 0 26.704 0 26.867 0 27.031 0 27.195 0 27.359	0 36. 369 0 36. 533 0 36. 697 0 36. 861 0 37. 025 0 37. 188	0 46. 199 0 46. 363 0 46. 527 0 46. 690 0 46. 854 0 47. 018	0 56. 028 0 56. 192 0 56. 356 0 56. 520 0 56. 684 0 56. 848	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 15. 688 1 15. 851 1 16. 015 1 16. 179 1 16. 343 1 16. 507	$ \begin{array}{r} 42 \\ 43 \\ \hline 44 \\ \hline 45 \\ 46 \\ 47 \\ \end{array} $. 115 . 117 . 120 . 123 . 126 . 128
48 49 50 51 52	0 7. 864 0 8. 027 0 8. 191 0 8. 355 0 8. 519	0 17. 693 0 17. 693 0 17. 857 0 18. 021 0 18. 185 0 18. 349	0 27. 523 0 27. 687 0 27. 850 0 28. 014 0 28. 178	0 37. 188 0 37. 352 0 37. 516 0 37. 680 0 37. 844 0 38. 008	$\begin{array}{c} 0.47.018 \\ 0.47.182 \\ 0.47.346 \\ \hline 0.47.510 \\ 0.47.673 \\ 0.47.837 \end{array}$	0 57. 011 0 57. 175 0 57. 339 0 57. 503 0 57. 667	$\begin{array}{cccc} 1 & 6.877 \\ 1 & 6.841 \\ 1 & 7.005 \\ \hline 1 & 7.169 \\ 1 & 7.332 \\ 1 & 7.496 \\ \end{array}$	1 16. 671 1 16. 834 1 16. 998 1 17. 162 1 17. 326	48 49 50 51 52	. 126 . 131 . 134 . 137 . 139 . 142
53 54 55 56 57	0 8.683 0 8.847 0 9.010 0 9.174 0 9.338	0 18. 512 0 18. 676 0 18. 840 0 19. 004 0 19. 168	$\begin{array}{c} 0 & 28.342 \\ 0 & 28.506 \\ \hline 0 & 28.670 \\ 0 & 28.833 \\ 0 & 28.997 \end{array}$	0 38. 171 0 38. 335 0 38. 499 0 38. 663 0 38. 827	0 48.001 0 48.165 0 48.329 0 48.492 0 48.656	0 57. 831 0 57. 994 0 58. 158 0 58. 322 0 58. 486	1 7.660 1 7.824 1 7.988 1 8.152 1 8.315	1 17. 490 1 17. 654 1 17. 817 1 17. 981 1 18. 145	53 54 55 56 57	. 145 . 147 . 150 . 153 . 156
58 59	0 9.502 0 9.666	0 19.331 0 19.495	0 29.161 0 29.325	0 38. 991 0 39. 154	0 48.820 0 48.984	0 58.650 0 58.814	1 8.479 1 8.643	1 18.309 1 18.473	58 59	. 158 0. 161

TABLE 8.

Sidereal into Mean Solar Time.

Sidereal.			То	be subtracted	from a sider	eal time inter	val.		
Side	8h	Эн	10h	11h	12h	13h	14h	15h	For seconds.
m. 0 1 2	m. s. 1 18.636 1 18.800 1 18.964	m. s. 1 28.466 1 28.630 1 28.794	m. s. 1 38. 296 1 38. 459 1 38. 623	m. 8. 1 48.125 1 48.289 1 48.453 1 48.617	m. s. 1 57. 955 1 58. 119 1 58. 282 1 58. 446	m. s. 2 7.784 2 7.948 2 8.112 2 8.276	m. s. 2 17.614 2 17.778 2 17.941 2 18.105	m. s. 2 27.443 2 27.607 2 27.771 2 27.935	ε. ε. 1 0.003 2 .005 3 .008
3 4	1 19. 128 1 19. 292	1 28.958 1 29.121	1 38.787 1 38.951	1 48.780	$\frac{1\ 58.410}{1\ 58.774}$	$\begin{array}{ c c c c c c }\hline 2 & 8.440 \\\hline 2 & 8.603 \\\hline \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2 28. 099 2 28. 263	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
5 6 7 8	1 19.456 1 19.619 1 19.783 1 19.947	1 29. 285 1 29. 449 1 29. 613 1 29. 777	1 39.115 1 39.279 1 39.442 1 39.606	1 48. 944 1 49. 108 1 49. 272 1 49. 436	1 58.938 1 59.101 1 59.265	2 8.767 2 8.931 2 9.095	2 18.597 2 18.761 2 18.924	2 28. 426 2 28. 590 2 28. 754	$egin{array}{c c} 6 & .016 \\ 7 & .019 \\ 8 & .022 \\ \end{array}$
$ \begin{array}{r} 9 \\ \hline 10 \\ 11 \\ 12 \end{array} $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1 29. 940 1 30. 104 1 30. 268 1 30. 432	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1 49.600 1 49.763 1 49.927 1 50.091	1 59. 429 1 59. 593 1 59. 757 1 59. 921	$\begin{array}{ c c c c }\hline 2 & 9.259 \\\hline 2 & 9.423 \\ 2 & 9.586 \\ 2 & 9.750 \\\hline \end{array}$	2 19.088 2 19.252 2 19.416 2 19.580	2 28.918 2 29.082 2 29.245 2 29.409	$\begin{array}{c c} 9 & .025 \\ \hline 10 & .027 \\ 11 & .030 \\ 12 & .033 \end{array}$
13 14 15	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{1\ 30.596}{1\ 30.760}$ $\overline{1\ 30.923}$	$ \begin{array}{r} 1 \ 40.425 \\ 1 \ 40.589 \\ \hline 1 \ 40.753 \\ 1 \ 40.917 \end{array} $	1 50. 255 1 50. 419 1 50. 583 1 50. 746	$\begin{array}{ccc} 2 & 0.084 \\ 2 & 0.248 \\ \hline 2 & 0.412 \\ 2 & 0.576 \\ \end{array}$	2 9.914 2 10.078 2 10.242 2 10.405	2 19.744 2 19.907 2 20.071 2 20.235	2 29.573 2 29.737 2 29.901 2 30.065	$\begin{array}{c c} 13 & .035 \\ 14 & .038 \\ \hline 15 & .041 \\ 16 & .044 \end{array}$
16 17 18 19	1 21. 258 1 21. 422 1 21. 585 1 21. 749	1 31. 087 1 31. 251 1 31. 415 1 31. 579	1 41.081 1 41.244 1 41.408	1 50.910 1 51.074 1 51.238	$\begin{array}{ccc} 2 & 0.740 \\ 2 & 0.904 \\ 2 & 1.067 \end{array}$	2 10.569 2 10.733 2 10.897	2 20.399 2 20.563 2 20.727	2 30. 228 2 30. 392 2 30. 556	$\begin{array}{c c} 17 & .046 \\ 18 & .049 \\ 19 & .052 \end{array}$
20 21 22 23 24	1 21. 913 1 22. 077 1 22. 241 1 22. 404 1 22. 568	1 31.743 1 31.906 1 32.070 1 32.234 1 32.398	1 41.572 1 41.736 1 41.900 1 42.064 1 42.227	1 51. 402 1 51. 565 1 51. 729 1 51. 893 1 52. 057	2 1. 231 2 1. 395 2 1. 559 2 1. 723 2 1. 887	2 11. 061 2 11. 225 2 11. 388 2 11. 552 2 11. 716	2 20. 890 2 21. 054 2 21. 218 2 21. 382 2 21. 546	2 30. 720 2 30. 884 2 31. 048 2 31. 211 2 31. 375	20 . 055 21 . 057 22 . 060 23 . 063 24 . 066
25 26 27 28	1 22. 732 1 22. 896 1 23. 060 1 23. 224	1 32. 562 1 32. 726 1 32. 889 1 33. 053	1 42. 391 1 42. 555 1 42. 719 1 42. 883	1 52. 221 1 52. 385 1 52. 548 1 52. 712	2 2.050 2 2.214 2 2.378 2 2.542	2 11. 880 2 12. 044 2 12. 208 2 12. 371	2 21. 709 2 21. 873 2 22. 037 2 22. 201	2 31.539 2 31.703 2 31.867 2 32.031	$\begin{array}{c cccc} \hline 25 & .068 \\ 26 & .071 \\ 27 & .074 \\ 28 & .076 \end{array}$
$ \begin{array}{r} 29 \\ \hline 30 \\ 31 \\ 32 \end{array} $	1 23.387 1 23.551 1 23.715 1 23.879	1 33. 217 1 33. 381 1 33. 545 1 33. 708	$\begin{array}{c} 1 \ 43.047 \\ \hline 1 \ 43.210 \\ 1 \ 43.374 \\ 1 \ 43.538 \end{array}$	1 52.876 1 53.040 1 53.204 1 53.368	2 2.706 2 2.869 2 3.033 2 3.197	2 12.535 2 12.699 2 12.863 2 13.027	2 22.365 2 22.529 2 22.692 2 22.856	2 32. 194 2 32. 358 2 32. 522 2 32. 686	$ \begin{array}{c c} 29 \\ \hline 30 \\ 31 \\ 32 \\ 085 \\ 087 \end{array} $
33 34 35	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1 33. 872 1 34. 036 1 34. 200 1 34. 364	1 43.702 1 43.866 1 44.029 1 44.193	$ \begin{array}{c} 1 & 53.531 \\ 1 & 53.695 \\ \hline 1 & 53.859 \\ 1 & 54.023 \end{array} $	2 3.361 2 3.525 2 3.689 2 3.852	$\begin{array}{c} 2 & 13.191 \\ 2 & 13.354 \\ \hline 2 & 13.518 \\ 2 & 13.682 \\ \end{array}$	$\begin{array}{c} 2 & 23.020 \\ 2 & 23.184 \\ \hline 2 & 23.348 \\ 2 & 23.512 \\ \end{array}$	2 32.850 2 33.013 2 33.177 2 33.341	33 . 090 34 . 093 35 . 096 36 . 098
36 37 38 39	1 24.698 1 24.862 1 25.026	1 34.528 1 34.691 1 34.855	1 44.357 1 44.521 1 44.685	1 54.187 1 54.351 1 54.514	2 4.016 2 4.180 2 4.344	2 13.846 2 14.010 2 14.173	2 23.675 2 23.839 2 24.003	2 33.505 2 33.669 2 33.833	37 .101 38 .104 39 .106
40 41 42 43 44	1 25. 190 1 25. 353 1 25. 517 1 25. 681 1 25. 845	1 35. 019 1 35. 183 1 35. 347 1 35. 511 1 35. 674	1 44.849 1 45.012 1 45.176 1 45.340 1 45.504	1 54. 678 1 54. 842 1 55. 006 1 55. 170 1 55. 333	2 4.508 2 4.672 2 4.835 2 4.999 2 5.163	2 14.337 2 14.501 2 14.665 2 14.829 2 14.993	2 24. 167 2 24. 331 2 24. 495 2 24. 658 2 24. 822	2 33. 996 2 34. 160 2 34. 324 2 34. 488 2 34. 652	40 .109 41 .112 42 .115 43 .117 44 .120
45 46 47 48 49	1 26.009 1 26.172 1 26.336 1 26.500 1 26.664	1 35. 838 1 36. 002 1 36. 166 1 36. 330 1 36. 493	1 45.668 1 45.832 1 45.995 1 46.159 1 46.323	1 55. 497 1 55. 661 1 55. 825 1 55. 989 1 56. 153	2 5.327 2 5.491 2 5.655 2 5.818 2 5.982	2 15, 156 2 15, 320 2 15, 484 2 15, 648 2 15, 812	2 24, 986 2 25, 150 2 25, 314 2 25, 477 2 25, 641	2 34. 816 2 34. 979 2 35. 143 2 35. 307 2 35. 471	45 .123 46 .126 47 .128 48 .131 49 .134
50 51 52 53 54	1 26. 828 1 26. 992 1 27. 155 1 27. 319 1 27. 483	1 36. 657 1 36. 821 1 36. 985 1 37. 149 1 37. 313	1 46. 487 1 46. 651 1 46. 815 1 46. 978 1 47. 142	1 56. 316 1 56. 480 1 56. 644 1 56. 808 1 56. 972	2 6. 146 2 6. 310 2 6. 474 2 6. 637 2 6. 801	2 15. 976 2 16. 139 2 16. 303 2 16. 467 2 16. 631	2 25, 805 2 25, 969 2 26, 133 2 26, 297 2 26, 460	2 35. 635 2 35. 798 2 35. 962 2 36. 126 2 36. 290	50 .137 51 .139 52 .142 53 .145 54 .147
55 56 57 58 59	1 27. 647 1 27. 811 1 27. 975 1 28. 138 1 28. 302	1 37. 476 1 37. 640 1 37. 804 1 37. 968 1 38. 132	1 47. 306 1 47. 470 1 47. 634 1 47. 797 1 47. 961	1 57. 136 1 57. 299 1 57. 463 1 57. 627 1 57. 791	2 6.965 2 7.129 2 7.293 2 7.457 2 7.620	2 16.795 2 16.959 2 17.122 2 17.286 2 17.450	2 26, 400 2 26, 624 2 26, 788 2 26, 952 2 27, 116 2 27, 280	2 36. 454 2 36. 618 2 36. 781 2 36. 945 2 37. 109	55 . 150 56 . 153 57 . 156 58 . 158 59 0. 161
59	1 28.302	1 38.132	1 47.961	1 57.791	2 7.620	2 17.450	2 27. 280	2 37.109	59 0.

TABLE 8.

Sidereal into Mean Solar Time.

Sidereal.			`To	be subtracted	from a sidere	eal time inter	val.			
Side	16h	17h	18h	19h	20h	21h	22h	23h	For	seconds.
n. 0 1 2	m. s. 2 37. 273 2 37. 437 2 37. 601	m. s. 2 47. 102 2 47. 266 2 47. 430	m. s. 2 56, 932 2 57, 096 2 57, 260	m. s. 3 6.762 3 6.925 3 7.089	m. 8. 3 16.591 3 16.755 3 16.919	m. s. 3 26, 421 3 26, 585 3 26, 748	m. s. 3 36, 250 3 36, 414 3 36, 578	m. s. 3 46.080 3 46.244 3 46.407	ε. 1 2	. 8. 0. 003 . 005
3 4	2 37. 764 2 37. 928	2 47. 594 2 47. 758	2 57.424 2 57.587	3 7.253 3 7.417	3 17.083 3 17.246	3 26. 912 3 27. 076	3 36.742 3 36.906	3 46.571 3 46.735	3 4	.008
5 6 7 8	2 38. 092 2 38. 256 2 38. 420 2 38. 584	2 47. 922 2 48. 085 2 48. 249 2 48. 413	2 57.751 2 57.915 2 58.079 2 58.243	3 7.581 3 7.745 3 7.908 3 8.072	3 17.410 3 17.574 3 17.738 3 17.902	3 27. 240 3 27. 404 3 27. 568 3 27. 731	3 37. 069 3 37. 233 3 37. 397 3 37. 561	3 46.899 3 47.063 3 47.227 3 47.390	5 6 7 8	.014 .016 .019 .022
$\frac{9}{10}$	$\begin{array}{ c c c c c }\hline 2 & 38.747\\ 2 & 38.911\\ 2 & 39.075\\ 2 & 20.220\\ \end{array}$	2 48. 577 2 48. 741 2 48. 905	$\begin{array}{ c c c c c c }\hline 2 & 58.406 \\ \hline 2 & 58.570 \\ 2 & 58.734 \\ 2 & 58.808 \\ \hline \end{array}$	3 8. 236 3 8. 400 3 8. 564 2 8. 789	3 18.066 3 18.229 3 18.393 2 18.557	3 27.895 3 28.059 3 28.223 2 28.387	$\begin{array}{c} 3 \ 37.725 \\ \hline 3 \ 37.889 \\ 3 \ 38.052 \\ 2 \ 28.916 \end{array}$	3 47. 554 3 47. 718 3 47. 882	$\frac{9}{10}$	$ \begin{array}{r} .025 \\ .027 \\ .030 \\ .022 \\ \end{array} $
$ \begin{array}{r} 12 \\ 13 \\ \hline 14 \\ \hline 15 \end{array} $	2 39, 239 2 39, 403 2 39, 566 2 39, 730	2 49.068 2 49.232 2 49.396 2 49.560	2 58, 898 2 59, 062 2 59, 226 2 59, 389	3 8.728 3 8.891 3 9.055 3 9.219	3 18.557 3 18.721 3 18.885 3 19.049	$\begin{bmatrix} 3 & 28.387 \\ 3 & 28.550 \\ 3 & 28.714 \\ \hline 3 & 28.878 \end{bmatrix}$	3 38.216 3 38.380 3 38.544 3 38.708	3 48.046 3 48.210 3 48.373 3 48.537	$ \begin{array}{r} 12 \\ 13 \\ 14 \\ \hline 15 \end{array} $	033 035 038 041
16 17 18	2 39, 894 2 40, 058 2 40, 222	2 49. 724 2 49. 888 2 50. 051	2 59.553 2 59.717 2 59.881	3 9.383 3 9.547 3 9.710	3 19.212 3 19.376 3 19.540	3 29.042 3 29.206 3 29.370	3 38.871 3 39.035 3 39.199	3 48.701 3 48.865 3 49.029	16 17 18	.044 .046 .049
$\frac{19}{20}$	$\begin{array}{c} 2 \ 40.386 \\ \hline 2 \ 40.549 \\ 2 \ 40.713 \\ 3 \ 40.877 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3 9.874 3 10.038 3 10.202	3 19.704 3 19.868 3 20.032	3 29.533 3 29.697 3 29.861	3 39.363 3 39.527 3 39.691	3 49. 193 3 49. 356 3 49. 520	$\frac{19}{20}$.052
$ \begin{array}{r} 22 \\ 23 \\ 24 \\ \hline 25 \end{array} $	2 40. 877 2 41. 041 2 41. 205 2 41. 369	$\begin{array}{c} 2 \ 50.707 \\ 2 \ 50.870 \\ 2 \ 51.034 \\ \hline 2 \ 51.198 \end{array}$	3 0.536 3 0.700 3 0.864 3 1.028	3 10.366 3 10.530 3 10.693 3 10.857	3 20, 195 3 20, 359 3 20, 523 3 20, 687	3 30. 025 3 30. 189 3 30. 353 3 30. 516	3 39.854 3 40.018 3 40.182 3 40.346	$ \begin{vmatrix} 3 & 49.684 \\ 3 & 49.848 \\ 3 & 50.012 \\ \hline 3 & 50.175 \end{vmatrix} $	$ \begin{array}{r} 22 \\ 23 \\ 24 \\ \hline 25 \end{array} $. 060 . 063 . 066
26 27 28	2 41. 509 2 41. 532 2 41. 696 2 41. 860	2 51. 198 2 51. 362 2 51. 526 2 51. 690	3 1.192 3 1.355 3 1.519	3 11.021 3 11.185 3 11.349	3 20.687 3 20.851 3 21.014 3 21.178	3 30. 516 3 30. 680 3 30. 844 3 31. 008	3 40. 510 3 40. 674 3 40. 837	3 50.173 3 50.339 3 50.503 3 50.667	26 27 28	.008 .071 .074 .076
$\frac{29}{30}$	$\begin{array}{c} 2 \ 42.024 \\ \hline 2 \ 42.188 \\ 2 \ 42.352 \end{array}$	$\begin{array}{c} 2 \ 51.853 \\ \hline 2 \ 52.017 \\ 2 \ 52.181 \end{array}$	$\begin{array}{ c c c c c }\hline 3 & 1.683 \\ \hline 3 & 1.847 \\ 3 & 2.011 \\ \hline\end{array}$	3 11.513 3 11.676 3 11.840	$\begin{array}{r} 3 \ 21.342 \\ \hline 3 \ 21.506 \\ 3 \ 21.670 \end{array}$	3 31.172 3 31.336 3 31.499	3 41.001 3 41.165 3 41.329	3 50.831 3 50.995 3 51.158	$\frac{29}{30}$	0.079 0.082 0.085
32 33 34	2 42.515 2 42.679 2 42.843	2 52.345 2 52.509 2 52.673	3 2.174 3 2.338 3 2.502	3 12.004 3 12.168 3 12.332	3 21.834 3 21.997 3 22.161	3 31.663 3 31.827 3 31.991	3 41.493 3 41.657 3 41.820	3 51.322 3 51.486 3 51.650	32 33 34	.087 .090 .093
35 36 37 38	2 43. 007 2 43. 171 2 43. 334 2 43. 498	2 52, 836 2 53, 000 2 53, 164 2 53, 328	3 2.666 3 2.830 3 2.994 3 3.157	3 12.496 3 12.659 3 12.823 3 12.987	3 22, 325 3 22, 489 3 22, 653 3 22, 817	3 32, 155 3 32, 318 3 32, 482 3 32, 646	3 41.984 3 42.148 3 42.312 3 42.476	3 51.814 3 51.978 3 52.141 3 52.305	35 36 37 38	. 096 . 098 . 101 . 104
$\frac{39}{40}$	2 43. 662 2 43. 826 2 43. 990	2 53. 492 2 53. 656 2 53. 819	3 3.321 3 3.485 3 3.649	3 13.151 3 13.315 3 13.478	3 22.980 3 23.144 3 23.308	3 32.810 3 32.974 3 33.138	3 42.639 3 42.803 3 42.967	3 52.469 3 52.633 3 52.797	39 40 41	.106 .109 .112
$ \begin{array}{r} 42 \\ 43 \\ 44 \\ \hline 45 \end{array} $	2 44. 154 2 44. 317 2 44. 481 2 44. 645	2 53. 983 2 54. 147 2 54. 311 2 54. 475	$\begin{bmatrix} 3 & 3.813 \\ 3 & 3.977 \\ 3 & 4.140 \\ \hline 3 & 4.304 \end{bmatrix}$	3 13.642 3 13.806 3 13.970 3 14.134	3 23.472 3 23.636 3 23.800 3 23.963	3 33. 301 3 33. 465 3 33. 629 3 33. 793	3 43.131 3 43.295 3 43.459 3 43.622	3 52.961 3 53.124 3 53.288 3 53.452	42 43 44 45	$ \begin{array}{r} .115 \\ .117 \\ .120 \\ \hline .123 \end{array} $
46 47 48 49	2 44. 809 2 44. 973 2 45. 137 2 45. 300	2 54. 638 2 54. 802 2 54. 966 2 55. 130	3 4.468 3 4.632 3 4.796 3 4.960	3 14. 298 3 14. 461 3 14. 625 3 14. 789	3 24. 127 3 24. 291 3 24. 455 3 24. 619	3 33. 957 3 34. 121 3 34. 284 3 34. 448	3 43.786 3 43.950	3 53. 616 3 53. 780 3 53. 943 3 54. 107	46 47 48 49	.126 .128 .131 .134
50 51 52	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2 55. 294 2 55. 458 2 55. 621	3 5. 123 3 5. 287 3 5. 451	3 14.953 3 15.117 3 15.281	3 24.782 3 24.946 3 25.110	3 34.612 3 34.776 3 34.940	3 44.442 3 44.605 3 44.769	3 54.271 3 54.435 3 54.599	$ \begin{array}{r} \hline 50 \\ 51 \\ 52 \\ \end{array} $. 137 . 139 . 142
53 54 55 56	2 45. 956 2 46. 120 2 46. 283 2 46. 447	2 55.785 2 55.949 2 56.113 2 56.277	3 5.615 3 5.779 3 5.942	3 15.444 3 15.608 3 15.772 3 15.026	3 25. 274 3 25. 438 3 25. 602 2 25. 765	3 35. 104 3 35. 267 3 35. 431 3 35. 595	3 44. 933 3 45. 097 3 45. 261 3 45. 425	3 54.763 3 54.926 3 55.090 3 55.254	53 54 55 56	.145 .147 .150
57 58 59	2 46. 447 2 46. 611 2 46. 755 2 46. 939	2 56. 277 2 56. 441 2 56. 604 2 56. 768	3 6.106 3 6.270 3 6.434 3 6.598	3 15, 936 3 16, 100 3 16, 264 3 16, 427	3 25, 765 3 25, 929 3 26, 093 3 26, 257	3 35, 759 3 35, 759 3 35, 923 3 36, 086	3 45. 588 3 45. 752 3 45. 916	3 55, 254 3 55, 418 3 55, 582 3 55, 746	56 57 58 59	. 153 . 156 . 158 0. 161
58	2 46.755	2 56.604	3 6.434	3 16. 264	3 26, 093	3 35.923	3 45.752	3 55. 582	58	. 1

TABLE 9.

Mean Solar into Sidereal Time.

	m. s. 0 0.000	1ь	2h	3h						
				on.	4h	5h	6h	7h	For	seconds.
	0 0.164	m. s. 0 9.856 0 10.021	$m. \ s. \ 0 \ 19.713 \ 0 \ 19.877$	$m. \ s. \\ 0 \ 29.569 \\ 0 \ 29.734$	m. s. 0 39.426 0 39.590	$m. \ s. \ 0 \ 49.282 \ 0 \ 49.447$	$m. s. \\ 0.59.139 \\ 0.59.303$	m. s. 1 8.995 1 9.160	s. 1	8. 0. 003
2 3	0 0.329 0 0.493 0 0.657	0 10.185 0 10.349 0 10.514	0 20.041 0 20.206 0 20.370	0 29.898 0 30.062 0 30.227	0 39.754 0 39.919 0 40.083	0 49.611 0 49.775 0 49.939	0 59.467 0 59.632 0 59.796	1 9.324 1 9.488 1 9.652	3 4	. 005 . 008
5	0 0.821	0 10.678	0 20.534	0 30.391	0 40.247	0 50.104	0 59.960	1 9.817	5	.011
7 8	0 0.986 0 1.150 0 1.314	0 10.842 0 11.006 0 11.171	0 20.699 0 20.863 0 21.027	0 30.555 0 30.719 0 30.884	0 40.412 0 40.576 0 40.740	0 50. 268 0 50. 432 0 50. 597	$ \begin{array}{cccc} 1 & 0.124 \\ 1 & 0.289 \\ 1 & 0.453 \end{array} $	1 9.981 1 10.145 1 10.310	6 7 8	. 016 . 019 . 022
	$ \begin{array}{c c} 0 & 1.478 \\ \hline 0 & 1.643 \end{array} $	0 11. 335	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c} 0 \ 31.048 \\ \hline 0 \ 31.212 \end{array}$	0 40.904	0 50.761	$\begin{array}{ c c c c c }\hline 1 & 0.617 \\\hline 1 & 0.782 \\\hline \end{array}$	1 10.474 1 10.638	$\frac{9}{10}$	$\frac{.025}{.027}$
12	0 1.807 0 1.971	0 11.663 0 11.828	0 21.520 0 21.684	0 31.376 0 31.541	0 41.233 0 41.397	0 51.089 0 51.254	1 0.946 1 1.110	1 10.802 1 10.967	11 12	.030
14	$ \begin{array}{cccc} 0 & 2.136 \\ 0 & 2.300 \\ \hline \end{array} $	0 11.992 0 12.156	0 21.849 0 22.013	0 31.705	0 41.561	0 51.418 0 51.582	1 1.274 1 1.439	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	13 14	.036
16	$ \begin{array}{ccc} 0 & 2.464 \\ 0 & 2.628 \\ 0 & 2.793 \end{array} $	0 12.321 0 12.485 0 12.649	$ \begin{array}{c cccc} 0 & 22.177 \\ 0 & 22.341 \\ 0 & 22.506 \end{array} $	0 32.034 0 32.198 0 32.362	0 41.890 0 42.054 0 42.219	0 51.746 0 51.911 0 52.075	$\begin{array}{c cccc} 1 & 1.603 \\ 1 & 1.767 \\ 1 & 1.932 \end{array}$	1 11.459 1 11.624 1 11.788	$ 15 \\ 16 \\ 17 $.041 $.044$ $.047$
18 19	0 2.957 0 3.121	0 12.813 0 12.978	0 22.670 0 22.834	0 32.526 0 32.691	0 42.383 0 42.547	0 52.239 0 52.404	1 2.096 1 2.260	1 11. 952 1 12. 117	18 19	.049
21	0 3.285 0 3.450	0 13.142 0 13.306	0 22.998 0 23.163	0 32.855 0 33.019	0 42.711 0 42.876	0 52.568 0 52.732	1 2.424 1 2.589	1 12. 281 1 12. 445	20 21	.055
23:	0 3.614 0 3.778 0 3.943	0 13.471 0 13.635 0 13.799	0 23.327 0 23.491 0 23.656	0 33. 183 0 33. 348 0 33. 512	0 43.040 0 43.204 0 43.368	0 52.896 0 53.061 0 53.225	$\begin{array}{cccc} 1 & 2.753 \\ 1 & 2.917 \\ 1 & 3.081 \end{array}$	1 12.609 1 12.774 1 12.938	22 23 24	. 060 . 063 . 066
25	0 4.107 0 4.271	0 13.963 0 14.128	0 23.820 0 23.984	0 33.676 0 33.841	0 43.533 0 43.697	0 53.389 0 53.554	1 3.246 1 3.410	1 13.102 1 13.266	$\begin{array}{c} 25 \\ 26 \end{array}$. 068
27 28	0 4.435 0 4.600	0 14.292 0 14.456	0 24.148 0 24.313	0 34.005 0 34.169	0 43.861 0 44.026	0 53.718 0 53.882	1 3.574 1 3.739	1 13.431 1 13.595	$\begin{array}{c} 27 \\ 28 \end{array}$.074
30	$ \begin{array}{c cccc} 0 & 4.764 \\ \hline 0 & 4.928 \end{array} $	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	0 24.477	0 34. 333	$\begin{array}{c c} 0 & 44.190 \\ \hline 0 & 44.354 \end{array}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c }\hline 1 & 3.903 \\ \hline 1 & 4.067 \\ \hline \end{array}$	$\begin{array}{c c} 1 & 13.759 \\ \hline 1 & 13.924 \end{array}$	$\frac{29}{30}$	$\frac{.079}{.082}$
32	0 5.093 0 5.257 0 5.421	0 14. 949 0 15. 113 0 15. 278	0 24.805 0 24.970 0 25.134	0 34.662 0 34.826 0 34.990	0 44.518 0 44.683 0 44.847	0 54.375 0 54.539 0 54.703	1 4.231 1 4.396 1 4.560	1 14.088 1 14.252 1 14.416	31 32 33	. 085 . 088 . 090
34	$ \begin{array}{cccc} 0 & 5.585 \\ 0 & 5.750 \end{array} $	0 15. 442 0 15. 606	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	0 35. 155	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	0 54.868	$\begin{array}{ c c c c c c }\hline 1 & 4.724 \\\hline 1 & 4.888 \\\hline \end{array}$	1 14.581 1 14.745	$\frac{34}{35}$.093
36	0 5.914 0 6.078	0 15.770 0 15.935	0 25.627 0 25.791	0 35. 483 0 35. 648	0 45.340 0 45.504	0 55. 196 0 55. 361	1 5.053 1 5.217	1 14. 909 1 15. 073	36 37	. 099
39	0 6.242 0 6.407	0 16.099 0 16.263	0 25. 955 0 26. 120	0 35.812 0 35.976	0 45.668 0 45.833	0 55. 525 0 55. 689	1 5.381 1 5.546	1 15.238 1 15.402	38 39	. 104
41	0 6.571 0 6.735 0 6.900	0 16, 427 0 16, 592 0 16, 756	0 26. 284 0 26. 448 0 26. 612	0 36. 140 0 36. 305 0 36. 469	0 45.997 0 46.161 0 46.325	0 55.853 0 56.018 0 56.182	$\begin{bmatrix} 1 & 5.710 \\ 1 & 5.874 \\ 1 & 6.038 \end{bmatrix}$	1 15.566 1 15.731 1 15.895	40 41 42	.110 .112 .115
43	0 7.064 0 7.228	0 16. 920 0 17. 085	0 26.777 0 26.941	0 36.633 0 36.798	0 46. 490 0 46. 654	0 56.346 0 56.510	1 6.203 1 6.367	1 16.059 1 16.223	43 44	.118
46	$\begin{array}{ccc} 0 & 7.392 \\ 0 & 7.557 \end{array}$	0 17. 249 0 17. 413	0 27. 105 0 27. 270	0 36.962 0 37.126	0 46.818 0 46.983	0 56.675 0 56.839	1 6.531 1 6.695	1 16.388 1 16.552	$\begin{array}{c} \overline{45} \\ 46 \end{array}$. 123
48	0 7.721 0 7.885 0 8.049	0 17. 577 0 17. 742 0 17. 906	0 27. 434 0 27. 598 0 27. 762	0 37. 290 0 37. 455 0 37. 619	0 47.147	0 57.003 0 57.168	$\begin{array}{c cccc} 1 & 6.860 \\ 1 & 7.024 \\ 1 & 7.188 \end{array}$	1 16.716 1 16.881	47 48 49	. 129
50	0 8.214 0 8.378	0 18.070 0 18.234	0 27. 927 0 28. 091	0 37.783 0 37.947	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	0 57. 332 0 57. 496 0 57. 660	$\begin{array}{ c c c c }\hline 1 & 7.188 \\ \hline 1 & 7.353 \\ 1 & 7.517 \\ \hline \end{array}$	$\begin{array}{ c c c c c }\hline 1 & 17.045 \\\hline 1 & 17.209 \\\hline 1 & 17.373 \\\hline\end{array}$	50 51	. 134 . 137 . 140
$\begin{array}{c c} 52 \\ 53 \end{array}$	0 8.542 0 8.707	0 18.399 0 18.563	0 28. 255 0 28. 420	0 38.112 0 38.276	0 47.968 0 48.132	0 57.825 0 57.989	1 7.681 1 7.845	1 17.538 1 17.702	52 53	. 142
55	0 8.871 0 9.035	0 18.727 0 18.892	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	0 38.440	0 48. 297 0 48. 461	0 58.153	$\begin{array}{ c c c c }\hline 1 & 8.010 \\ \hline 1 & 8.174 \\ \hline \end{array}$	1 17.866 1 18.030	$\frac{54}{55}$. 148
57	0 9.199 0 9.364 0 9.528	0 19.056 0 19.220 0 19.384	0 28. 912 0 29. 077	0 38.769	0 48.625	0 58.482	1 8.338 1 8.502	1 18.195 1 18.359	56 57	. 153
	0 9.692	0 19. 549	0 29.241 0 29.405	0 39.097 0 39.262	0 48.954 0 49.118	0 58.810 0 58.975	1 8.667 1 8.831	1 18.523 1 18.688	58 59	0. 159 0. 162

TABLE 9.

Mean Solar into Sidereal Time.

i.				To be added	l to a mean ti	me interval.	-			
Mean.	8h	9ь	10h	11 ^h	12h	18 ^h	144	15h	For	seconds.
m. 0 1 2 3	m. s. 1 18.852 1 19.016 1 19.180 1 19.345	m. s. 1 28.708 1 28.873 1 29.037 1 29.201	m. s. 1 38.565 1 38.729 1 38.893 1 39.058	m. s. 1 48. 421 1 48. 585 1 48. 750 1 48. 914	m. s. 1 58. 278 1 58. 442 1 58. 606 1 58. 771	m. s. 2 8.134 2 8.298 2 8.463 2 8.627 2 8.791	m. s. 2 17. 991 2 18. 155 2 18. 319 2 18. 483	m. s. 2 27. 847 2 28. 011 2 28. 176 2 28. 340	8. 1 2 3	8. 0.003 .005 .008
5 6 7 8	1 19.509 1 19.673 1 19.837 1 20.002 1 20.166	$\begin{array}{ c c c c c }\hline 1 & 29.365 \\\hline 1 & 29.530 \\\hline 1 & 29.694 \\\hline 1 & 29.858 \\\hline 1 & 30.022 \\\hline\end{array}$	1 39. 222 1 39. 386 1 39. 550 1 39. 715 1 39. 879	1 49. 078 1 49. 243 1 49. 407 1 49. 571 1 49. 735	1 58. 935 1 59. 099 1 59. 263 1 59. 428 1 59. 592	2 8.791 2 8.956 2 9.120 2 9.284 2 9.448	2 18.648 2 18.812 2 18.976 2 19.141 2 19.305	2 28.504 2 28.668 2 28.833 2 28.997 2 29.161	5 6 7 8	.011 .014 .016 .019 .022
$\frac{9}{10}$ $\frac{11}{12}$	1 20.330 1 20.495 1 20.659 1 20.823	1 30.187 1 30.351 1 30.515 1 30.680	1 40.043 1 40.207 1 40.372 1 40.536	1 49. 900 1 50. 064 1 50. 228 1 50. 393	1 59.756 1 59.920 2 0.085 2 0.249	2 9.613 2 9.777 2 9.941 2 10.105	2 19.469 2 19.633 2 19.798 2 19.962	2 29. 326 2 29. 490 2 29. 654 2 29. 818	$\frac{9}{10}$ $\frac{11}{12}$. 025 . 027 . 030 . 033
13 14 15	$\begin{array}{c} 1 & 20.987 \\ 1 & 21.152 \\ \hline 1 & 21.316 \end{array}$	$\begin{array}{c} 1 & 30.844 \\ 1 & 31.008 \\ \hline 1 & 31.172 \end{array}$	$\begin{array}{c} 1 \ 40.700 \\ 1 \ 40.865 \\ \hline 1 \ 41.029 \end{array}$	$ \begin{array}{c} 1 & 50.557 \\ 1 & 50.721 \\ \hline 1 & 50.885 \end{array} $	$\begin{array}{c cccc} 2 & 0.413 \\ 2 & 0.578 \\ \hline 2 & 0.742 \end{array}$	$\begin{array}{r} 2 \ 10.270 \\ 2 \ 10.434 \\ \hline 2 \ 10.598 \end{array}$	$\begin{array}{c} 2 & 13.502 \\ 2 & 20.126 \\ 2 & 20.290 \\ \hline 2 & 20.455 \\ 2 & 20.619 \end{array}$	2 29.983 2 30.147 2 30.311	$\frac{13}{14}$ $\overline{15}$	036 038 041
16 17 18 19	1 21.480 1 21.644 1 21.809 1 21.973	1 31.337 1 31.501 1 31.665 1 31.829	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 51. 050 1 51. 214 1 51. 378 1 51. 542	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2 10.763 2 10.927 2 11.091 2 11.255	2 20.783 2 20.948 2 21.112	2 30. 476 2 30. 640 2 30. 804 2 30. 968	16 17 18 19	. 044 . 047 . 049 . 052
20 21 22 23 24	1 22.137 1 22.302 1 22.466 1 22.630 1 22.794	1 31.994 1 32.158 1 32.322 1 32.487	1 41. 850 1 42. 015 1 42. 179 1 42. 343 1 42. 507	1 51. 707 1 51. 871 1 52. 035 1 52. 200	$\begin{array}{cccc} 2 & 1.563 \\ 2 & 1.727 \\ 2 & 1.892 \\ 2 & 2.056 \\ 2 & 2.220 \end{array}$	2 11. 420 2 11. 584 2 11. 748 2 11. 912 2 12. 077	2 21. 276 2 21. 440 2 21. 605 2 21. 769 2 21. 933	2 31. 133 2 31. 297 2 31. 461 2 31. 625 2 31. 790	20 21 22 23	. 055 . 057 . 060 . 063
24 25 26 27	1 22.959 1 23.123 1 23.287	$\begin{array}{ c c c c c }\hline 1 & 32.651 \\\hline 1 & 32.815 \\\hline 1 & 32.979 \\\hline 1 & 33.144 \\\hline 1 & 38.202 \\\hline\end{array}$	1 42.672 1 42.836 1 43.000	$ \begin{array}{r} 1 \ 52.364 \\ \hline 1 \ 52.528 \\ 1 \ 52.692 \\ 1 \ 52.857 \\ \end{array} $	2 2.385 2 2.549 2 2.713	2 12. 241 2 12. 405 2 12. 570	2 22. 098 2 22. 262 2 22. 426	2 31. 954 2 32. 118 2 32. 283	$\frac{24}{25}$ $\frac{26}{27}$.066 .068 .071 .074
28 29 30 31	$\begin{array}{c} 1 & 23.451 \\ 1 & 23.616 \\ \hline 1 & 23.780 \\ 1 & 23.944 \end{array}$	$\begin{array}{ c c c c }\hline 1 & 33.308 \\ 1 & 33.472 \\\hline\hline 1 & 33.637 \\ 1 & 33.801 \\\hline\end{array}$	$ \begin{array}{c} 1 & 43.164 \\ 1 & 43.329 \\ \hline 1 & 43.493 \\ 1 & 43.657 \end{array} $	1 53. 021 1 53. 185 1 53. 349 1 53. 514	$\begin{array}{ccc} 2 & 2.877 \\ 2 & 3.042 \\ \hline 2 & 3.206 \\ 2 & 3.370 \\ \end{array}$	$\begin{array}{c} 2 & 12.734 \\ 2 & 12.898 \\ \hline 2 & 13.062 \\ 2 & 13.227 \end{array}$	$\begin{array}{c} 2 & 22.590 \\ 2 & 22.755 \\ \hline 2 & 22.919 \\ 2 & 23.083 \\ \end{array}$	$\begin{array}{ c c c c c }\hline 2 & 32.447 \\ 2 & 32.611 \\\hline\hline 2 & 32.775 \\ 2 & 32.940 \\\hline\end{array}$	28 29 30 31	0.077 0.079 0.082 0.085
$ \begin{array}{r} 32 \\ 33 \\ \hline 34 \\ \hline 35 \\ \end{array} $	1 24. 109 1 24. 273 1 24. 437 1 24. 601	1 33. 965 1 34. 129 1 34. 294 1 34. 458	$ \begin{array}{c} 1 \ 43.822 \\ 1 \ 43.986 \\ 1 \ 44.150 \\ \hline 1 \ 44.314 \end{array} $	$ \begin{array}{c} 1 \ 53.678 \\ 1 \ 53.842 \\ 1 \ 54.007 \\ \hline 1 \ 54.171 \end{array} $	$\begin{array}{r} 2 & 3.534 \\ 2 & 3.699 \\ 2 & 3.863 \\ \hline 2 & 4.027 \end{array}$	$\begin{array}{c} 2 \ 13.391 \\ 2 \ 13.555 \\ 2 \ 13.720 \\ \hline 2 \ 13.884 \end{array}$	$\begin{array}{ c c c c c }\hline 2 & 23.247 \\ 2 & 23.412 \\ 2 & 23.576 \\ \hline \hline 2 & 23.740 \\ \hline \end{array}$	$\begin{bmatrix} 2 & 33.104 \\ 2 & 33.268 \\ 2 & 33.432 \\ \hline 2 & 33.597 \end{bmatrix}$	$ \begin{array}{r} 32 \\ 33 \\ \hline 34 \\ \hline 35 \\ \end{array} $. 088 . 090 . 093
36 37 38 39	1 24.766 1 24.930 1 25.094 1 25.259	1 34. 622 1 34. 786 1 34. 951 1 35. 115	1 44. 479 1 44. 643 1 44. 807 1 44. 971	1 54. 335 1 54. 499 1 54. 664 1 54. 828	2 4.192 2 4.356 2 4.520 2 4.684	2 14.048 2 14.212 2 14.377 2 14.541	2 23. 905 2 24. 069 2 24. 233 2 24. 397	2 33. 761 2 33. 925 2 34. 090 2 34. 254	36 37 38 39	. 099 . 101 . 104 . 107
40 41 42 43 44	1 25. 423 1 25. 587 1 25. 751° 1 25. 916 1 26. 080	1 35. 279 1 35. 444 1 35. 608 1 35. 772 1 35. 936	1 45. 136 1 45. 300 1 45. 464 1 45. 629 1 45. 793	1 54, 992 1 55, 156 1 55, 321 1 55, 485 1 55, 649	2 4.849 2 5.013 2 5.177 2 5.342 2 5.506	2 14.705 2 14.869 2 15.034 2 15.198 2 15.362	2 24. 562 2 24. 726 2 24. 890 2 25. 054 2 25. 219	2 34. 418 2 34. 582 2 34. 747 2 34. 911 2 35. 075	40 41 42 43 44	.110 .112 .115 .118 .120
45 46 47 48	1 26. 244 1 26. 408 1 26. 573 1 26. 737	1 36. 101 1 36. 265 1 36. 429 1 36. 593	1 45. 957 1 46. 121 1 46. 286 1 46. 450	1 55, 814 1 55, 978 1 56, 142 1 56, 306	2 5.670 2 5.834 2 5.999 2 6.163	2 15. 527 2 15. 691 2 15. 855 2 16. 019	2 25. 383 2 25. 547 2 25. 712 2 25. 876	2 35. 239 2 35. 404 2 35. 568 2 35. 732	45 46 47 48	.123 .126 .129 .131
$ \begin{array}{r} 49 \\ \hline 50 \\ 51 \\ 52 \\ \hline 52 \\ \hline 52 \\ \hline 52 \\ \hline 53 \\ \hline 54 \\ \hline 55 \\ 55 \\ \hline 55 \\ \hline 55 \\ 55$	1 27.066 1 27.230 1 27.394	1 36.758 1 36.922 1 37.086 1 37.251	1 46. 614 1 46. 778 1 46. 943 1 47. 107	1 56. 471 1 56. 635 1 56. 799 1 56. 964	2 6. 327 2 6. 491 2 6. 656 2 6. 820 2 6. 984	2 16.348 2 16.512 2 16.676	2 26. 040 2 26. 204 2 26. 369 2 26. 533 2 26. 697	2 35. 897 2 36. 061 2 36. 225 2 36. 389 2 36. 554	50 51 52 53	. 134 . 137 . 140 . 142
53 54 55 56 57	1 27. 558 1 27. 723 1 27. 887 1 28. 051 1 28. 215	$\begin{array}{ c c c c c }\hline 1 & 37.415 \\ 1 & 37.579 \\\hline\hline 1 & 37.743 \\ 1 & 37.908 \\ 1 & 38.072 \\\hline\end{array}$	$ \begin{array}{c} 1 & 47.271 \\ 1 & 47.436 \\ \hline 1 & 47.600 \\ 1 & 47.764 \\ 1 & 47.928 \end{array} $	$\begin{array}{c} 1 \ 57.128 \\ 1 \ 57.292 \\ \hline 1 \ 57.456 \\ 1 \ 57.621 \\ 1 \ 57.785 \end{array}$	$\begin{array}{c} 2 & 6.984 \\ 2 & 7.149 \\ \hline 2 & 7.313 \\ 2 & 7.477 \\ 2 & 7.641 \end{array}$	2 16. 841 2 17. 005 2 17. 169 2 17. 334 2 17. 498	2 26. 697 2 26. 861 2 27. 026 2 27. 190 2 27. 354	2 36. 534 2 36. 718 2 36. 882 2 37. 047 2 37. 211	53 54 55 56 57	. 145 . 148 . 151 . 153 . 156
58 59	1 28. 215 1 28. 380 1 28. 544	1 38.072 1 38.236 1 38.400	1 47. 928 1 48. 093 1 48. 257	1 57. 785 1 57. 949 1 58. 113	2 7.841 2 7.806 2 7.970	2 17. 498 2 17. 662 2 17. 826	2 27. 519 2 27. 683	2 37. 211 2 37. 375 2 37. 539	58 59	. 159 0. 162

TABLE 9.

Mean Solar into Sidereal time.

				To be adde	d to a mean t	ime interval.			
Mean.	16h	17h	184	19h	204	21h	22h	23h	For seconds.
m. 0 1	m. s. 2 37.704 2 37.868	m. s. 2 47.560 2 47.724	m. s. 2 57.417 2 57.581	m. s. 3 7.273 3 7.437	m. s. 3 17.129 3 17.294	m. s. 3 26.986 3 27.150	m. s. 3 36.842 3 37.007	m. s. 3 46.699 3 46.863	s. s. 1 0.003
3	2 38. 032 2 38. 196 2 38. 361	2 47. 889 2 48. 053 2 48. 217	2 57.745 2 57.909 2 58.074	3 7.602 3 7.766 3 7.930	3 17. 458 3 17. 622 3 17. 787	3 27. 315 3 27. 479 3 27. 643	3 37. 171 3 37. 335 3 37. 500	3 47. 027 3 47. 192 3 47. 356	$ \begin{array}{c cccc} 2 & .005 \\ 3 & .008 \\ 4 & .011 \end{array} $
$\begin{array}{ c c }\hline 4\\ 5\\ 6\\ \end{array}$	2 38. 525 2 38. 689	2 48. 381 2 48. 546	2 58. 238 2 58. 402	3 8.094 3 8.259	3 17. 951 3 18. 115	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	3 37.664 3 37.828	3 47.520 3 47.685	$ \begin{array}{c cccc} 4 & .011 \\ \hline 5 & .014 \\ 6 & .016 \end{array} $
7 8	2 38.854 2 39.018	2 48. 710 2 48. 874	2 58. 566 2 58. 731	3 8.423 3 8.587	3 18. 279 3 18. 444	3 28. 136 3 28. 300	3 37. 992 3 38. 157	3 47. 849 3 48. 013	$\begin{bmatrix} 0 & .010 \\ 7 & .019 \\ 8 & .022 \end{bmatrix}$
$\frac{9}{10}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2 49. 039	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	3 18.608 3 18.772	3 28.464 3 28.629	3 38.321 3 38.485	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{c c} 9 & .025 \\ \hline 10 & .027 \end{array} $
11 12 13	2 39.511 2 39.675 2 39.839	2 49.367 2 49.531 2 49.696	2 59. 224 2 59. 388 2 59. 552	3 9.080 3 9.244 3 9.409	3 18.937 3 19.101 3 19.265	3 28.793 3 28.957 3 29.122	3 38.649 3 38.814 3 38.978	3 48.506 3 48.670 3 48.834	$ \begin{array}{c cccc} 11 & .030 \\ 12 & .033 \\ 13 & .036 \end{array} $
$\frac{14}{15}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	3 9.573 3 9.737	3 19.429 3 19.594	3 29. 286 3 29. 450	3 39.142 3 39.307	3 48.999 3 49.163	$ \begin{array}{c c} $
16 17	2 40. 332 2 40. 496	2 50. 188 2 50. 353	3 0.045 3 0.209	3 9.901 3 10.066	3 19.758 3 19.922	3 29.614 3 29.779	3 39.471 3 39.635	3 49.327 3 49.492	$\begin{bmatrix} 16 & .044 \\ 17 & .047 \end{bmatrix}$
18 19	2 40.661 2 40.825	2 50.517 2 50.681	3 0.373 3 0.538	3 10.230 3 10.394	3 20.086 3 20.251	3 29.943 3 30.107	3 39.799 3 39.964	3 49.656 3 49.820	$ \begin{array}{c c} 18 & .049 \\ 19 & .052 \end{array} $
$20 \\ 21 \\ 22$	$egin{array}{cccc} 2 & 40.989 \\ 2 & 41.153 \\ 2 & 41.318 \end{array}$	$\begin{bmatrix} 2 & 50.846 \\ 2 & 51.010 \\ 2 & 51.174 \end{bmatrix}$	3 0.702 3 0.866 3 1.031	3 10.559 3 10.723 3 10.887	3 20.415 3 20.579 3 20.744	3 30. 271 3 30. 436 3 30. 600	3 40. 128 3 40. 292 3 40. 456	3 49.984 3 50.149 3 50.313	$\begin{vmatrix} 20 & .055 \\ 21 & .057 \\ 22 & .060 \end{vmatrix}$
$\begin{array}{c} 22 \\ 23 \\ 24 \end{array}$	2 41. 482 2 41. 646	2 51. 338 2 51. 503	3 1. 195 3 1. 359	3 11. 051 3 11. 216	3 20.744 3 20.908 3 21.072	3 30. 764 3 30. 929	3 40. 430 3 40. 621 3 40. 785	3 50. 313 3 50. 477 3 50. 642	$\begin{bmatrix} 22 & .060 \\ 23 & .063 \\ 24 & .066 \end{bmatrix}$
25 26	2 41.810 2 41.975	2 51.667 2 51.831	3 1.523 3 1.688	3 11.380 3 11.544	3 21.236 3 21.401	3 31.093 3 31.257	3 40.949 3 41.114	3 50.806 3 50.970	$ \begin{array}{c cccc} \hline 25 & .068 \\ 26 & .071 \end{array} $
$\begin{array}{c} 27 \\ 28 \end{array}$	2 42.139 2 42.303	2 51.995 2 52.160	$\begin{array}{ccc} 3 & 1.852 \\ 3 & 2.016 \end{array}$	3 11.708 3 11.873	3 21.565 3 21.729	3 31, 421 3 31, 586	3 41.278 3 41.442	3 51.134 3 51.299	$\begin{bmatrix} 27 & .074 \\ 28 & .077 \end{bmatrix}$
$\frac{29}{30}$	2 42.468 2 42.632	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{3}{3}$ 2. 181	$\frac{3 \ 12.037}{3 \ 12.201}$	$\frac{3\ 21.893}{3\ 22.058}$	$\frac{3\ 31.750}{3\ 31.914}$	3 41.606	$\frac{3\ 51.463}{3\ 51.627}$	$ \begin{array}{c c} 29 & .079 \\ \hline 30 & .082 \end{array} $
31 32	2 42.796 2 42.960	2 52.653 2 52.817 2 52.981	3 2.509 3 2.673	3 12.366 3 12.530	3 22. 222 3 22. 386	3 32.078 3 32.243	3 41.935 3 42.099	3 51.791 3 51.956	31 . 085 32 . 088
33 34	$\begin{array}{c} 2 & 43.125 \\ 2 & 43.289 \\ \hline 2 & 43.453 \end{array}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	3 2.838 3 3.002 3 3.166	$ \begin{array}{r} 3 \ 12.694 \\ 3 \ 12.858 \\ \hline 3 \ 13.023 \end{array} $	$\begin{array}{r} 3 \ 22.551 \\ 3 \ 22.715 \\ \hline 3 \ 22.879 \end{array}$	$ \begin{array}{r} 3 \ 32.407 \\ 3 \ 32.571 \\ \hline 3 \ 32.736 \end{array} $	$ \begin{array}{r} 3 \ 42.264 \\ 3 \ 42.428 \\ \hline 3 \ 42.592 \end{array} $	3 52.120 3 52.284	33 . 090 34 . 093
35 36 37	2 43. 453 2 43. 617 2 43. 782	2 53. 510 2 53. 474 2 53. 638	3 3.330 3 3.495	3 13. 187 3 13. 351	3 23. 043 3 23. 208	3 32. 730 3 32. 900 3 33. 064	3 42.592 3 42.756 3 42.921	3 52.449 3 52.613 3 52.777	35 . 096 36 . 099 37 . 101
38 39	2 43. 946 2 44. 110	2 53. 803 2 53. 967	3 3.659 3 3.823	3 13.515 3 13.680	3 23.372 3 23.536	3 33. 228 3 33. 393	3 43. 085 3 43. 249	3 52. 941 3 53. 106	38 .104 39 .107
40 41	2 44. 275 2 44. 439	2 54.131 2 54.295	3 3.988 3 4.152	3 13.844 3 14.008	3 23.700 3 23.865	3 33.557 3 33.721	3 43.413 3 43.578	3 53. 270 3 53. 434	$ \begin{array}{c cccc} 40 & .110 \\ 41 & .112 \end{array} $
42 43	2 44. 603 2 44. 767	2 54.460 2 54.624	3 4.316 3 4.480	3 14.173 3 14.337	3 24, 029 3 24, 193	3 33. 886 3 34. 050	3 43. 742 3 43. 906	3 53, 598 3 53, 763	42 .115 43 .118
44 45	2 44. 932	$\begin{array}{c c} 2 & 54.788 \\ \hline 2 & 54.952 \\ \hline $	3 4.645 3 4.809	3 14.501 3 14.665	3 24.358 3 24.522	3 34. 214 3 34. 378	3 44. 071 3 44. 235	3 53.927 3 54.091	$ \begin{array}{c cccc} 44 & .120 \\ \hline 45 & .123 \end{array} $
46 47	2 45. 260 2 45. 425 2 45. 580	2 55. 117 2 55. 281 2 55. 445	3 4.973 3 5.137 3 5.302	3 14.830 3 14.994 2 15 159	3 24.686 3 24.850	3 34, 543 3 34, 707	3 44, 399 3 44, 563 2 44, 799	3 54, 256 3 54, 420	46 . 126 47 . 129
$\frac{48}{49}$ $\overline{50}$	$\begin{array}{c cccc} 2 & 45.589 \\ 2 & 45.753 \\ \hline 2 & 45.917 \end{array}$	2 55. 445 2 55. 610 2 55. 774	3 5.302 3 5.466 3 5.630	3 15.158 3 15.322 3 15.487	3 25. 015 3 25. 179 3 25. 343	3 34. 871 3 35. 035 3 35. 200	3 44. 728 3 44. 892 3 45. 056	3 54.584 3 54.748 3 54.913	48 .131 49 .134
$\frac{50}{51}$	2 46. 917 2 46. 082 2 46. 246	2 55. 774 2 55. 938 2 56. 102	3 5.795 3 5.959	3 15. 651 3 15. 815	3 25. 508 3 25. 672	3 35, 364 3 35, 528	3 45. 056 3 45. 220 3 45. 385	3 55. 077 3 55. 241	50 .137 51 .140 52 .142
53 54	2 46. 410 2 46. 574	2 56. 267 2 56. 431	3 6. 123 3 6. 287	3 15. 980 3 16. 144	3 25.836 3 26.000	3 35. 693 3 35. 857	3 45. 549 3 45. 713	3 55. 405 3 55. 570	53 .145 54 .148
55 56	2 46.739 2 46.903	2 56.595 2 56.759	3 6.452 3 6.616	3 16.308 3 16.472	3 26.165 3 26.329	3 36. 021 3 36. 185	3 45.878 3 46.042	3 55.734 3 55.898	55 . 151 56 . 153
57 58 59	2 47. 067 2 47. 232 2 47. 396	2 56. 924 2 57. 088 2 57. 252	3 6.780 3 6.944 3 7.109	3 16.637 3 16.801 3 16.965	3 26, 493 3 26, 657 3 26, 822	3 36. 350 3 36. 514 3 36. 678	3 46. 206 3 46. 370 3 46. 535	3 56.063 3 56.227 3 56.391	57 . 156 58 . 159
08	2 X1.000	2 01.202	0 1.108	0 10, 900	0 20.022	0 00.078	9 40,000	9 90,981	59 0. 162

North Latitude: 0° to 20°—March 21 to June 22.

TABLE 10.

Mean Time of Sun's Visible Rising and Setting.

C 3136 N/ # 8, 12.5

	Lat. N.		。。		75	es	4	2	9			, o	10			13	7	15	16	11	18	61	8	
rox. te.	qqA ab	Dec. N.	ജ്യ	pri ori	ജ്ത്	ಜೆಂ	മ്ജ്മ	zi vi	ജ്ജ്	ഷ്ഠ	i ni	ഗ്ഷ്	i zi o	i zi o	i zi z	ri o	മ്ജ്	ઋં જ	ഷ്ഗ	zi π	a c	ó≃:	i ni	'n
	65	28° 27'	h. m. 5 57 6 05	5 56 6 07	6 08 08	2 25	6 51 6 12	5 49 6 13	6 47 6 15	5 46	5 44	243	2 40	886	50.36	100 c	888	5 30 6 32	5 28 6 34 6 34	5 26 6 36	373	263 263 263 263 263 263 263 263 263 263	202	6 42
JUNE.	10	083	h. m. 5 55 6 03	5 54	6 52 6 52	200	6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	5 47 6 11	5 46 6 13	5 44	27	5 40	2 38	38.36		233	828	5 29 6 30						
	1	61 61	h. m. 5 54 6 02														6 2 2 2							
	56	016	h. m. 5 53 6 01	252	33	848	346	45 08	104	35	19:	39	32	88.2	3 7 2	88		223	888	98	323	ននេះ	525	3
	21	06	55.3 6 52.3 6 000.3	52	64 83 83	84.6	388	88	8 6 8 6	42	18:	285	125	36	### ###	888	នន្តន	ន្តន	% 7	98	222	988	38	31
	16	19°	7. m. 7 5 52 6 00	12	28	845	845	45	#8	43	37;	185	2 88 7	187	138	37.	288	표리	88	88.5	322	828	38	Ži
MAY.	- 27	180	7. m. 7 5 52 6 00	120	28	65	842	940	8 45	2 2	25		330	8 2	32	35		228	82	88	383	38	228	23
F		170	7. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	51	28	66	348	99	345	#8	3	34:	196	133	38.4	999		34	220	등 등	128	3 23	57	8
	70	16°	h. m. h 5 53 5	222		32	468	44	46	45	34:	24:	145	195	182	38	33.	8 % 18 %	34	88 5	123	38	38	22
		150	h. m. // 5 53 1	828	32	25	548	28	47	946	5.5	24:	185	192	345	36	282	37	38	33	37.	325	325	23
	8	140	7. m. 7. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	222	35	32	468	\$ 9	45	96	3.4	845	3 2 2	- - -	172	40	65 33 ±	38	37	36	50	3 %	7 SS	<u>z</u>
	25	13°	h. m. h. 5 54 6 6 02 6	25.53	25	51	328	69	649	48	34	883	45	145	1 th 2	3	±45	040	39	88 3	87	36	3 53	77
	- G	051	h. m. h. 55 55 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3.72	84	32.5	8228	32	220	67	84	845	41	1961	145	77;		51.51	141	95	33	2 88	325	ដ
·	19	110	7. m. 7. 5 55 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	13.2	まま	53	388	52	51	33	3 🗣	84. 84.	37	142	192	145	277	55	16	315	:4:	64	2 68	ล ล
Γ.	16	01	h. m. 7 5 56 5 6 04	25.5	35.39	27	878	53	852	51	3.23		4=	185	45	46	_	15	55.	44	3	14	2 4	19
APRIL.	13	့ မ	h. m. 7 5 57 6 05	56	35 55	55	3:8:5	108	88	88	223	51.	125	125	199	8	3 2 2	44	15	46	45	34	74	18
	п	8	7. m. 5 57 7	57	57 06	26	22.20	52.50	08	<u></u>	333	823	252	51	125	200	_	671	84.	8 1	47	96.5	16 46	17
		0.	7. m. 7. 5 58 7. 6 06 06	88.9	28	22	822	288	55 85	55	37	875	53	53	225	225	2122	14	32	25	46	65	3 &	16
	10	့9	h. m. 1 5 59 6 07	59	26	38	888	22	57 09	56	323	255	122	122	127 2	53	282	13	25	252	51	21	23	15
	e0	٥	6 00.2	88	88	59	86.8	620	828	28	22	225	22	120	135 5	55	122	135						
	31	9	6 00 . m. c.	88	88	88	388	28	00 00 00	59	28	285	181	57	121	57	122	125	56 13	26.5	3.0	323	55	14
	30 30	es es	h. m. 6 01	55	100	100	358	101	101	89	38	28:	18:	125	1201	200	1222	12	22	28	82	27	57	<u> </u>
MARCH.	56	Ģ1	h. m. 6 02 6 10	202	22	85	225	105	1021	10	35,	25:	155	15	101	18;	181	821	82	85	18;	56	225	7
M	80	<u>°</u>	h. m. 6 03 6 11	133	118	85	181	81	8II	85	18:	 :8:	18:	181	181	87	181	122	1202	35	183	15	75	12
	21	%	h. m. 6 04.	3 7	35	ਰ:	 	31	113	8:	18;	18:	18:	181	181	83	181	81	81	861	18;	18;	18:	=
	gd A gb	Dec. N.						i					i	_		_	മ്ജ്ഗ്	i –						_
-,,	Lat. N.		60	7	78	ñ	4	2	~	~~~	77		É	11	12	13	14	15.	16	17{	18	76	26	-

TABLE 10.

		Lat.		0 5	1 8	77	83	24	25	526	27	28	53	08	31	32	88	34	35	98	37	88	68		9	
	rox.	qqA sb	Dec. N.	zi.	જોલ્લ	တင်မ	વંજાં	ഷ്ത്	ജ്ശ്	25.00	ri o	ല്ഗ	r d	ജ്ൽ	ri si	ഷ്ഗ	ഷ്ഗ	<u>ين</u> ه	ં ભાં જ	<u>بر</u> من	ഷ്ഗ	24 02	ei o	iα	i soi	
		65	230 277	h. m. 5 18	6 44 5 16	6 46	6 48	5 12 6 50	5 10 6 53	5 08	5 06 5 58	250	5 01	7 05	4 56 7 07	4 54 7 10	4 51 7 12	4 49	7 4 46	4 43	4 40	4 87	4.t	9 2	4.7	4
	JUNE.	10	089 61											4 58 7 01					- 4.5 145	4 42	4 39 7 19	4 36 7 22	- 4.r	38	28	
		1	021						5 10					4 59 6 56 96					4.0 84.0 84.0		47				7 7 7 7 7	
		56	210																47		44.		4 39	01 7	7 18	
		15	200						5 13 6 40					6 49					328	4 50 8 80 8 80	4 47	45	4:	36	7 13	
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North Latitude: 21° to 40°—September 23 to December 22.

North Latitude: 41° to 60°—September 23 to December 22.

TABLE 10.

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TABLE 10.

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TABLE 10.

Mean Time of Sun's Visible Rising and Setting.

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South Latitude: 0° to 20°.—June 22 to September 23

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TABLE 10.

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TABLE 10.

Mean Time of Sun's Visible Rising and Setting.

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South Latitude: 0° to 20°—December 22 to March 21.

[R=Local mean time of sun's visible rising. S=Local mean time of sun's visible setting.]

TABLE 10.

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MABCH.	11	40	m.	302	128	25	8	38		828	86 8	348	948	348	345	44.	£ %	248	44	5 40	68	188	37	44	84
N.	œ	့	ű,	349	848	4 8	유	36	87	37										5 35 6 48					
	9	·9	m.	988	54.5	84	33	£ 5	34	43	2 4	68.5	1884	37	36	35	2033	25	22.22	5 29 6 54	82 92	88	57	59	22
	က	20							5 39 6 46										5 25 6 59	5 24 7 01					
	1	ာင္က	m.	99	133	38	848	37		234	88 8	322	8 2	2282	27	88	នួន	812	98	5 18 7 08					
	26	o 6							5 32 6 55											5 12 7 14					
	23	10°																		5 06 7 21					
	50	110																		5 00 7 28					
ïY.	18	150							2 2 3 3 4 3					7 19					7 32	7 35 7 35					
FEBRUARY	15	18°							5 15 7 13											7 42					
FE	12	140							5 11 7 18											4 40 7 49					
	6	15°																		4 2 2 2 3 3 3 3					
	נט	16°	h. m.	5 11 7 17	2 00	5 07	22.	2 2	5 02 7 27	4 59 7 29	7 2 2 2 2 3 3 2 3	4. 22.	7 25 25 25 25 25 25 25 25 25 25 25 25 25	4 48 7 41	4 44 7 44	4 41	4 38 7 51	4 t	7 58	8 03 8 03					
	91	170	h. m.	5 07	2 02	38	7 25	4 t	4 57 7 31											8 10 8 10					
	58	18°																		4 10 8 17					
	25	19°																		8 23					
ARY.	13	5000																		8 30 8 30					
JANU	16	210							4 33 7 46											3 42 8 37					
	10	220																		3 31 8 44					
	61	230							4 17 7 51											8 18 8 49					
BER.	55	23° 27′							7 48 4 88											8 98 48					
rox te.	q q A	Dec. S.		ഷ്യര്	zi o	i e	vi i	zi od	ജ്യ	zi oż	ri u	irio	i pri ori	zi w	zi ozi	ഷ്ഗ	ഷ്ഗ്	ri v	ജ്ജ്	zi si	≃i v.	: H	ശ്മ	zó:	સંજ
	S. S.		0	41	42		ř.	44	45,	46	47{	48	49	20	51	52	23	54	55	200	57.{	38	5		909

South Latitude: 41° to 60°—December 22 to March 21.

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TABLE 11.

For reducing the Time of the Moon's passage over the Meridian of Greenwich to the Time of its passage over any other Meridian. The numbers taken from this Table are to be added to the Time at Greenwich in West Longitude, subtracted in East Longitude.

ongi-					Dany v	zariatio	n of the	moon's	passing	the meri	dian.				Lon
tude.	40m	42m	44m	46m	48m	50m	52m	54m	56m	58m	60m	62m	64m	66m	tud
۰	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	m.	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10	1	1	1	1	1	1	1	1	2	2	2 2	2	2	2	1
15	2	2	2	3	2	2	2	2	2	$\overline{2}$	2	3	3	3	1
20	2	2	2	2	3	3	3	3	3	3	3	3	4	4	2
25	3	3	3	3	3	3	4	4	4	4	4	4	4	5	2
30	3	3	4	4	4	4	4	4	5	5_	5	5	5	5	3
35	4	4	4	4	5	5	5.	5	5	6	6	6	6	6	3
40	4	5	5	5	5	6	6	6	6	6	7	7	7	7	4
45	5	5	5	6	6	6	6	7	7	7	7	8	8	8	4
50	6	6	6	6	7	7	7	7	8	8	8	9	9	9	5
55_	6	6	7	7	7	8	8	8	9	9	9	9	10	10	5
60	7	7	7	8	8	8	9	9	9	10	10	10	11	11	6
65	7	8	8	8	9	9	9	10	10	10	11	11	12	12	6
70	8	8	9	9	9	10	10	10	11	11	12	12	12	13	7
75	8	9	9	10	10	10	11	11	12	12	12	13	13	14	7
80	9	9	10	_10	11_	11_	12	12	12	13	13	14	14	15_	8
85	9	10	10	11	11	12	12	13	13	14	14	15	15	16	- 8
90	10	10	11	11	12	12	13	13	14	14	15	15	16	16	9
95	11	11	12	12	13	13	14	14	15	15	16	16	17	17	9
100	11	12	12	13	13	14	14	15	16	16	17	17	18	18	10
105	12	12	13_	13	14	15	15	16	16	17	17	18	19	19	10
110	12	13	13	14	15	15	16	16	17	18	18	19	20	20	11
115	13	13	14	15	15	16	17	17	18	19	19	20	20	21	11
120	13	14	15	15	16	17	17	18	19	19	20	21	21	22	12
125	14	15	15	16	17	17	18	19	19	20	21	22	22	23	12
130	14	15	16		_17	18	19	19	20	21	22	22	23	24	13
135	15	16	16	17	18	19	19	20	21	22	22	23	24	25	13
140	16	16	17	18	19	19	20	21	22	23	23	24	25	26	14
145	16	17	18	19	19	20	21	22	23	23	24	25	26	27	14
150	17	17	18	19	20	21	22	22	23	24	25	26	27	27	15
155	17	_18	19	_20	_21_	22_	22	23	24	25	26	27	28	28	15
160	18	19	20	20	21	22	23	24	25	26	27	28	28	29	16
165	18	19	20	21	22	23	24	25	26	27	27	28	29	30	16
170	19	20	21	22	23	24	25	25	26	27	28	29	30	31	17
175	19	20	21	22	23	24	25	26	27	28	29	30	31	32	17
180	20	21	22	23	24	25	26	27	28	29	30	31	32	33	18
-	40m	42m	44m	46m	48m	50m	52m	54m	56m	58m	60m	62m	64=	66=	—

									Но	rary n	otion									\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
М.	1"	2''	3"	4"	5"	6"	7''	8"	9"	10"	11"	12"	13"	14"	15"	16"	17"	18"	19"	М.
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 1	0	0	0 1	$\frac{1}{2}$
$\frac{2}{3}$	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	- 3
4 5	0	0	0	0	0	$\begin{array}{c c} 0 \\ 1 \end{array}$	$\begin{array}{ c c }\hline 0\\ 1\end{array}$	1 1	1	1	1 1	1	1 1	1	1 1	1	$\begin{array}{c c} 1 \\ 1 \end{array}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{4}{5}$
6	0	0	0	0	1	1	1	1	1	1	1	$\frac{1}{1}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	2 2	$\frac{6}{7}$
7 8	0	0	0	$\begin{array}{c c} 0 \\ 1 \end{array}$	1	1	1 1	1 1	1 1	1	1 1	$\frac{1}{2}$	2	$\begin{bmatrix} 2\\2\\2 \end{bmatrix}$	2	2	2	2	3	8
9 10	0	0	$\begin{array}{c c} 0 \\ 1 \end{array}$	1	1	1	1 1	1	$\frac{1}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\begin{array}{c c} 2 \\ 2 \end{array}$	$\frac{2}{3}$	$\frac{2}{3}$	3 3	3 3	3	9 10
11	0	0	1	1	1	1	1	1	$\overline{2}$	$\frac{2}{2}$	$\frac{1}{2}$	$\frac{2}{2}$	$\frac{2}{3}$	3	3	$\frac{3}{3}$	3 3	$\frac{3}{4}$	$\frac{3}{4}$	$\begin{array}{c} 11 \\ 12 \end{array}$
12 13	0	0	1	1 1	1	1	1 2	2 2	2 2	2	2 2	3	3	3	3	3	4	4	4	13
14 15	0	0	1	1 1	1	$\frac{1}{2}$	$\frac{2}{2}$	2 2	$\frac{2}{2}$	2 3	3	3	3	3 4	4	4 4	4	4 5	4 5	14 15
16 17	0	$\frac{1}{1}$	$\frac{1}{1}$	1	1	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{3}$	3	3	3	3 4	4 4	4	4 5	5 5	5 5	5 5	16 17
18	0	1	1	1	2	2	2	2	3	3	3	4	4	4	5	5	5	5	6	18
19 20	0	1	1 1	1 1	2 2	$\frac{2}{2}$	$\frac{2}{2}$	3	3	3 3	3 4	4	4	4 5	5 5	5 5	5	6	6 6	19 20
$\begin{array}{c} 21 \\ 22 \end{array}$	0	1	1 1	1	2 2	$\frac{2}{2}$	$\frac{2}{3}$	3	3 3	4	4	4	5 5	5 5	5	6	6	6 7	7 7	$\frac{21}{22}$
23	0	1	1	$\frac{1}{2}$	$\frac{2}{2}$	$\begin{bmatrix} \frac{1}{2} \\ 2 \end{bmatrix}$	3 3	3	3	4	4	5 5	5 5	5 6	6	6	7 7	7 7	7 8	$\begin{array}{c} -23 \\ 24 \end{array}$
24 25	0	1	1	2	2	3	3	3	4	4	5	5	5	6	6	7	7	8	8	25
26 27	0	1	1	$\frac{2}{2}$	$\frac{2}{2}$	3 3	3	3 4	4	4 5	5 5	5 5	6	6	7 7	$\frac{7}{7}$	7 8	8	8 9	26 27
28 29	Ŏ O	1	1	$\frac{1}{2}$	2 2	3	3	4	4	5 5	5	6	6	7 7	7 7	7 8	8 8	8 9	9	28 29
30	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	30
$\begin{array}{c} 31 \\ 32 \end{array}$	1	1	$\frac{2}{2}$	$\frac{2}{2}$	3 3	3	4 4	4	5 5	5 5	6	6	7 7	$\frac{7}{7}$	8 8	8 9	9	9	10 10	$\begin{array}{c} 31 \\ 32 \end{array}$
33 34	1	1 1	2 2	2 2	3 3	3	4	4 5	5 5	6	6 6	7 7	7 7	8 8	8 9	9	10	10 10	10 11	33 34
35	1	1	2	_2	3	4	4	5	_ 5	6	6	7	8	8	9	9	10	11	11	35
36 37	1	1	$\frac{2}{2}$	$\frac{2}{2}$	3 3	4	4	5 5	5 6	6	7 7	7 7	8 8	8 9	9	10 10	10 10	11 11	11 12	36 37
38 39	1	1	2 2	3	3 3	4	5	5	6	6 7	7	8	8	9	10 10	10	11	$\begin{array}{c c} & 11 \\ & 12 \end{array}$	$\begin{array}{c c} 12 \\ 12 \end{array}$	38 39
40	1	1	2	3	3	4	5	5	6_	7	7	8	9	9	10	11	11_	$\frac{12}{12}$	13	40
41 42	1 1	1 1	$\frac{2}{2}$	3 3	3 4	4 4	5 5	5 6	6	7	8 8	8 8	9	10 10	10 11	11 11	12 12	13	13 13	41 42
43 44	1	1	2 2	3	4	4 4	5 5	6	6	$\begin{vmatrix} 7\\7 \end{vmatrix}$	8	9	9	10 10	11 11	11 12	$\begin{array}{c c} 12 \\ 12 \end{array}$	13 13	14 14	43 44
45	1	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{3}{3}$	$\frac{4}{4}$	5	$\frac{5}{5}$	$\frac{6}{6}$	$\frac{7}{7}$	8 8	8	$\frac{9}{9}$	$\frac{10}{10}$	11	$\frac{11}{12}$	$\frac{12}{12}$	13	14	$\frac{14}{15}$	45
47	1	2	2	3	4	5	5	6	7	8	9	9	10	11	12	13	13	14	15	47
48 49	1	2 2	2 2	3	4	5 5	6	6 7	7	8	9	10 10	10 11	11 11	12 12	13 13	14 14	14 15	15 16	48 49
$\frac{50}{51}$	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{3}{3}$	$\frac{3}{3}$	$\frac{4}{4}$	$\frac{5}{5}$	$\frac{6}{6}$	$\frac{7}{7}$	$\frac{8}{8}$	$\frac{8}{9}$	$\frac{9}{9}$	$\frac{10}{10}$	$\frac{11}{11}$	$\frac{12}{12}$	$\frac{13}{13}$	13	14	$\frac{15}{15}$	$\frac{16}{16}$	$\frac{50}{51}$
52 53	1 1	2	3 3	3	4	5 5 5 5	6	7	8	9	10	10	11	$\begin{array}{c} 12 \\ 12 \\ 12 \end{array}$	13	14	15	16 16	16	52 53
54	1	2 2 2 2 2 2	3	4	5		6	7 7	8 8	9	10 10	11 11	11 12	13	13 14	14	15 15	16	17 17	54
$\frac{55}{56}$	$\frac{1}{1}$	$\frac{2}{2}$	$\frac{3}{3}$	$\frac{4}{4}$	$\frac{5}{5}$	$\frac{6}{6}$	$\frac{6}{7}$	$\frac{7}{7}$	8	$\frac{9}{9}$	10	$\frac{11}{11}$	$\frac{12}{12}$	$\frac{13}{13}$	14	15 15	$\frac{16}{16}$	$\frac{17}{17}$	$\frac{17}{18}$	$\frac{55}{56}$
57 58	1 1	2	3 3 3	4	5 5 5	6	7 7	8 8	9	10 10	10 11	11 12	12 13	13 14	14 15	15 15	16 16	17 17	18 18	57 58
59	1	$\begin{bmatrix} 2\\2\\2\\2\\2\\2 \end{bmatrix}$	3 3	4	5 5	6	7 7	8 8	9	10	11	12	13	14	15	16	17	18	19	59
60	1	Z	3	4	0	6	/	8	9	10	11	12	13	14	15	16	17	18	19	60

TABLE 12.

.,								I	Iorary	motion								
М.	20"	21"	22"	23"	24"	25"	26"	27"	28"	29"	30"	31"	32"	33"	34"	35"	36"	М.
1 2 3 4 5	$\begin{bmatrix} 0\\1\\1\\1\\2 \end{bmatrix}$	0 1 1 1 2	$\begin{bmatrix} 0\\1\\1\\1\\2 \end{bmatrix}$	$\begin{bmatrix} 0\\1\\1\\2\\2\end{bmatrix}$	$\begin{bmatrix} 0\\1\\1\\2\\2 \end{bmatrix}$	$egin{array}{c} 0 \\ 1 \\ 1 \\ 2 \\ 2 \end{array}$	$\begin{bmatrix} 0\\1\\1\\2\\2 \end{bmatrix}$	0 1 1 2 2	$\begin{array}{c} 0 \\ 1 \\ 1 \\ 2 \\ 2 \end{array}$	$0 \\ 1 \\ 1 \\ 2 \\ 2$	1 1 2 2 3	1 1 2 2 3	1 1 2 2 3	1 1 2 2 3	1 1 2 2 3	1 1 2 2 2 3	1 1 2 2 3	1 2 3 4 5
6 7 8 9	$\frac{2}{2}$ $\frac{2}{3}$ $\frac{3}{3}$	2 2 3 3 4	$\frac{2}{3}$ $\frac{3}{4}$	$\frac{2}{3}$ $\frac{3}{4}$	$\begin{bmatrix} \frac{2}{3} \\ 3 \\ 4 \\ 4 \end{bmatrix}$	3 3 3 4 4	3 3 3 4 4	3 3 4 4 5	3 3 4 4 5	3 3 4 4 5	3 4 4 5 5	3 4 4 5 5	3 4 4 5 5	3 4 4 5 6	3 4 5 5 6	4 4 5 5 6	4 4 5 5 6	6 7 8 9
11 12 13 14 15	4 4 4 5 5	4 4 5 5 5	4 4 5 5 6	4 5 5 5 6	4 5 5 6 6	5 5 6 6	5 5 6 6 7	5 5 6 6 7	5 6 6 7	5 6 6 7 7	6 6 7 7 8	6 6 7 7 8	6 6 7 7 8	6 7 7 8 8	6 7 7 8 9	6 7 8 8	7 7 8 8 9	11 12 13 14 15
16 17 18 19 20	5 6 6 6 7	6 6 6 7 7	6 6 7 7	6 7 7 7 8	6 7 7 8 8	7 7 8 8 8	7 7 8 8 9	7 8 8 9	7 8 8 9	8 8 9 9	8 9 9 10 10	8 9 9 10 10	9 9 10 10 11	9 9 10 10 11	9 10 10 11 11	9 10 11 11 12	10 10 11 11 11 12	16 17 18 19 20
21 22 23 24 25	7 7 8 8 8	7 8 8 8 9	8 8 8 9	8 8 9 9	8 9 9 10 10	9 10 10 10	9 10 10 10 11	9 10 10 11 11	10 10 11 11 11 12	10 11 11 12 12	11 11 12 12 13	11 11 12 12 13	11 12 12 13 13	12 12 13 13 14	12 12 13 14 14	12 13 13 14 15	13 13 14 14 14 15	21 22 23 24 25
26 27 28 29 30	9 9 9 10 10	9 9 10 10 11	10 10 10 11 11	10 10 11 11 11 12	10 11 11 12 12	11 11 12 12 13	11 12 12 13 13	12 12 13 13 14	12 13 13 14 14	13 13 14 14 14 15	13 14 14 15 15	13 14 14 14 15 16	14 14 15 15 16	14 15 15 16 17	15 15 16 16 17	15 16 16 17 18	16 16 17 17 17 18	26 27 28 29 30
31 32 33 34 35	10 11 11 11 11 12	11 11 12 12 12	11 12 12 12 12 13	12 12 13 13 13	12 13 13 14 14	13 13 14 14 14 15	13 14 14 15 15	14 14 15 15 16	14 15 15 16 16	15 15 16 16 17	16 16 17 17 17	16 17 17 18 18	17 17 18 18 18	17 18 18 19 19	18 18 19 19 20	18 19 19 20 20	19 19 20 20 21	31 32 33 34 35
36 37 38 39 40	12 12 13 13 13	13 13 13 14 14	13 14 14 14 14 15	14 14 15 15 15	14 15 15 16 16	15 15 16 16 16	16 16 16 17 17	16 17 17 18 18	17 17 18 18 18	17 18 18 19 19	18 19 19 20 20	19 19 20 20 21	$ \begin{array}{r} 19 \\ 20 \\ 20 \\ 21 \\ 21 \end{array} $	$ \begin{array}{r} $	$ \begin{array}{r} 20 \\ 21 \\ 22 \\ 22 \\ 23 \end{array} $	21 22 22 23 23	22 22 23 23 24	36 37 38 39 40
41 42 43 44 45	14 14 14 15 15	14 15 15 15 15 16	15 15 16 16 16 17	16 16 16 17 17	16 17 17 18 18	17 18 18 18 18	18 18 19 19 20	18 19 19 20 20	19 20 20 21 21	20 20 21 21 21 22	21 21 22 22 22 23	21 · 22 22 23 23	$ \begin{array}{c} 21 \\ 22 \\ 22 \\ 23 \\ 23 \\ 24 \end{array} $	23 23 24 24 24 25	23 24 24 25 26	24 25 25 26 26	25 25 26 26 27	41 42 43 44 45
46 47 48 49 50	15 16 16 16 16	16 16 17 17 17 18	17 17 18 18 18	18 18 18 19 19	18 19 19 20 20	19 20 20 20 20 21	20 20 21 21 21 22	21 21 22 22 22 23	21 22 22 23 23	22 23 23 24 24 24	23 24 24 25 25	24 24 25 25 26	25 25 26 26 27	25 26 26 27 28	26 27 27 28 28	27 27 27 28 29 29	28 28 29 29 30	46 47 48 49 50
51 52 53 54 55	17 17 18 18 18	18 18 19 19	19 19 19 20 20	20 20 20 21 21	20 21 21 21 22 22	21 22 22 22 23 23	22 23 23 23 23 24	23 23 24 24 24 25	24 24 25 25 26	25 25 26 26 26 27	26 26 27 27 27 28	26 27 27 28 28	27 28 28 29 29	28 29 29 30 30	29 29 30 31 31	30 30 31 32 32	31 31 32 32 33	51 52 53 54 55
56 57 58 59 60	19 19 19 20 20	20 20 20 21 21	21 21 21 22 22 22	21 22 22 22 23 23	22 23 23 24 24 24	23 24 24 24 25 25	24 25 25 25 26 26	25 26 26 27 27	26 27 27 28 28 28	27 28 28 29 29	28 29 29 30 30	29 29 30 30 31	30 30 31 31 32	31 31 32 32 32 33	32 32 33 33 34	33 33 34 34 34 35	34 34 35 35 36	56 57 58 59 60

TABLE 12.

									Horary	motion	1.						1	
М.	37"	88"	89″	40"	41"	42"	43"	44"	45"	46"	47"	48"	49"	50"	51"	52"	53"	М.
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2 3	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\begin{array}{c c} 1 \\ 2 \end{array}$	$\frac{1}{2}$	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	$\frac{2}{2}$	$\frac{2}{2}$	$egin{array}{c} 2 \ 2 \end{array}$	$\frac{2}{3}$	$\begin{bmatrix} 2 \\ 3 \\ 3 \end{bmatrix}$	$\frac{2}{3}$	$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$	$\frac{2}{3}$
4	2	3	3	3	3	3	3	3 4	3 4	3 4	3 4	$\frac{3}{4}$	3 4	3	3 4	3 4	4 4	4
$\frac{5}{6}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	4	4	4	$-\frac{4}{4}$	$-\frac{4}{5}$	$\frac{4}{5}$	$\frac{4}{5}$	5	5	5	5	5	5	$\frac{5}{6}$
7	4 5	4 5	5 5	5 5	5 5	5 6	5 6	5 6	5 6	5 6	5 6	6 6	6 7	6 7	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{6}{7}$	6	7 8
8	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	9
$\frac{10}{11}$	$\frac{6}{7}$	$\frac{6}{7}$	$\frac{7}{7}$	$\frac{7}{7}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{8}{8}$	$\frac{8}{8}$	$\frac{8}{9}$	$\frac{8}{9}$	$\frac{8}{9}$	$\frac{8}{9}$	$\frac{9}{9}$	$\frac{9}{10}$	$\frac{9}{10}$	$\frac{10}{11}$
12	7	8	8	8	8	8	9	9	9	9	9	10	10	10	10	10	11	12
13 14	8 9	8 9	8 9	9	9	9	9	10 10	10 11	10 11	$\frac{10}{11}$	10 11	11 11	$\begin{array}{c} 11 \\ 12 \end{array}$	11 12	$\begin{array}{c} 11 \\ 12 \end{array}$	11 12	13 14
15	9	10	10	10	10	11	11	11	11	$\frac{12}{12}$	12	12	$\frac{12}{12}$	13	$\frac{13}{14}$	13	13	15
16 17	10 10	10 11	10 11	11 11	11 12	11 12	11 12	$\begin{array}{c} 12 \\ 12 \end{array}$	12 13	$\begin{array}{c} 12 \\ 13 \end{array}$	13 13	13 14	13 14	13 14	14	14 15	14 15	16 17
18 19	$\begin{array}{c} 11 \\ 12 \end{array}$	11 12	12 12	12	12 13	13 13	13 14	13 14	14 14	14 15	14 15	14 15	15 16	15 16	15 16	16 16	16 17	18
20	12	13	13	13	14	14	14	15	15	15	16	16	16	17	17	17	18	19 20
$\begin{array}{c} 21 \\ 22 \end{array}$	13 14	13 14	14 14	14 15	14 15	15 15	15 16	15 16	16 17	$\frac{16}{17}$	16 17	17 18	17 18	18 18	18 19	18 19	19 19	$\begin{array}{c} 21 \\ 22 \end{array}$
23	14	15	15	15	16	16	16	17	17	18	18	18	19	19	20	20	20	23
24 25	15 15	15 16	16 16	16 17	16 17	17 18	17	18 18	18 19	18 19	$\frac{19}{20}$	$\frac{19}{20}$	20 20	$\frac{20}{21}$	$\begin{array}{ c c }\hline 20\\21\\ \end{array}$	$\begin{array}{c c} 21 \\ 22 \end{array}$	$\begin{array}{c} 21 \\ 22 \end{array}$	$\frac{24}{25}$
26	16	16	17	17	18	18	19	19	20	20	20	21	21	22	22	23	23	26
27 28	17 17	17 18	18	18 19	18 19	19 20	19 20	$\frac{20}{21}$	20 21	$\begin{array}{c} 21 \\ 21 \end{array}$	$\begin{array}{c} 21 \\ 22 \end{array}$	22 22	22 23	23 23	23 24	23 24	$\begin{array}{c} 24 \\ 25 \end{array}$	27 28
29 30	18 19	18 19	19 20	19 20	$\begin{array}{ c c } 20 \\ 21 \end{array}$	$\begin{array}{c c} 20 \\ 21 \end{array}$	$\begin{array}{c c} 21 \\ 22 \end{array}$	21 22	22 23	22 23	23 24	23 24	24 25	24 25	$\frac{25}{26}$	$\begin{array}{c} 25 \\ 26 \end{array}$	26 27	29 30
31	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	31
32 33	$\frac{20}{20}$	20 21	21 21	21 22	22 23	22 23	23 24	23 24	24 25	25 25	25 26	26 26	26 27	27 28	27 28	28 29	28 29	32 33
34	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	34
$\frac{35}{36}$	$\frac{22}{22}$	$\frac{22}{23}$	$\frac{23}{23}$	$\frac{23}{24}$	$\frac{24}{25}$	$\frac{25}{25}$	$\frac{25}{26}$	$\frac{26}{26}$	$\frac{26}{27}$	$\frac{27}{28}$	$\frac{27}{28}$	$\frac{28}{29}$	$\frac{29}{29}$	$\frac{29}{30}$	$\frac{30}{31}$	$\frac{30}{31}$	$\frac{31}{32}$	$\frac{35}{36}$
37	23	23 24	24 25	25 25	25 26	26 27	27 27	27 28	28 29	28 29	29 30	30	30	31	31	32	33	37
38 39	23 24	25	25	26	27	27	28	29	29	30	31	30 31	31 32	32 33	32 33	33 34	34 34	38 39
40	$\frac{25}{25}$	$\frac{25}{26}$	$\frac{26}{27}$	$\frac{27}{27}$	$\frac{27}{28}$	$\begin{array}{ c c } \hline 28 \\ \hline 29 \\ \hline \end{array}$	$\frac{29}{29}$	$\frac{29}{30}$	$\frac{30}{31}$	$\frac{31}{31}$	$\frac{31}{32}$	$\frac{32}{33}$	33	33	$\frac{34}{35}$	$\frac{35}{36}$	$\frac{35}{36}$	40
42	26	27	27	28	29	29	30	31	32	32	33	34	34	35	36	36	37	$\begin{array}{c} 41 \\ 42 \end{array}$
43 44	$\begin{array}{ c c } 27 \\ 27 \end{array}$	27 28	28 29	29 29	29 30	30	$\begin{vmatrix} 31 \\ 32 \end{vmatrix}$	$\begin{array}{ c c }\hline 32\\32\\ \end{array}$	32	33 34	34	34 35	35 36	36 37	37	37 38	38	43 44
45	28	29	29	30	31	32	32	33	34	35	35	36	37	38	38	39	40	45
46 47	28 29	29 30	30 31	31 31	$\begin{array}{c} 31 \\ 32 \end{array}$	32 33	33 34	34 34	35 35	35 36	36 37	37 38	38 38	38 39	39 40	40 41	41 42	46 47
48 49	30 30	30	31 32	32	33 33	34 34	34 35	35 36	36 37	37 38	38 38	38 39	39	40	41	42	42	48
50	31	32	33	33	34	35	36	37	38	38	39	40	40 41	41 42	42 43	42	43	49 50
51 52	$\begin{array}{c} 31 \\ 32 \end{array}$	32 33	33 34	34 35	35 36	36 36	37 37	37 38	38 39	39 40	40 41	41 42	42 42	43 43	43	44 45	45 46	51 52
53	33	34	34	35	36	37	38	39	40	41	42	42	43	44	45	46	47	53
54 55	33	34 35	35 36	36	37 38	38	39	40	41	$\begin{array}{ c c }\hline 41\\ 42\\ \end{array}$	42	43	44 45	45	46	47 48	48 49	54 55
56	35	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	49	56
57 58	35 36	36	37 38	38	39 40	40 41	41 42	42	43	44	45	46	47	48	48 49	49 50	50	57 58
59 60	36 37	37 38	38 39	39 40	40	41 42	42 43	43	44 45	45 46	46	47 48	48 49	49 50	50	51	52	59 60
	137	30	33	10	.41	142	40	111	40	1 40	*1	40	49	90	51	52	95	00

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TABLE 12.

								1	lorary	motion								
М.	54"	55"	56"	57"	58"	59"	60′′	61′′	62"	63′′	64′′	65"	66"	67"	68"	69"	70′′	М.
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$	$\begin{vmatrix} 2 \\ 3 \end{vmatrix}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\begin{vmatrix} 2\\ 3 \end{vmatrix}$	2 3	$\frac{2}{3}$	3	$\begin{vmatrix} 2\\3 \end{vmatrix}$	$egin{array}{c} 2 \\ 4 \end{array}$	2 3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	4
5	5	5	$\frac{5}{e}$	$\frac{5}{c}$	$\frac{5}{c}$	$\frac{5}{c}$	$\frac{5}{e}$	$\frac{5}{c}$	$\frac{5}{6}$	$\frac{5}{e}$	$\frac{5}{e}$	$\frac{5}{7}$	$\frac{6}{7}$	$\frac{6}{7}$	$\frac{6}{7}$	$\frac{6}{7}$	$\frac{-6}{7}$	$\frac{5}{6}$
6	$\frac{5}{6}$	6	6 7	6	6 7	6 7	6 7	6 7	7	6 7	6 7	8	8	8	8	8	8	7
8	7	7	7	8 9	8 9	8	8 9	8 9	8 9	8	9	9	9	9	9	9	9	8
$\frac{9}{10}$	8 9	8	8 9	10	10	10	10	10	10	$\begin{array}{c} 9 \\ 11 \end{array}$	10 11	10 11	10 11	11	10	$\begin{array}{c c} 10 \\ 12 \end{array}$	11 12	10
11	10	10	10	10	11	11	11	11	11	12	12	12	12 13	12	12	13	13	11
$\begin{array}{c} 12 \\ 13 \end{array}$	$\begin{array}{c} 11 \\ 12 \end{array}$	$\begin{array}{c c} 11 \\ 12 \end{array}$	$\begin{array}{c} 11 \\ 12 \end{array}$	$\begin{array}{c} 11 \\ 12 \end{array}$	12 13	$\begin{array}{c} 12 \\ 13 \end{array}$	$\begin{array}{c} 12 \\ 13 \end{array}$	12	$\begin{array}{c c} 12 \\ 13 \end{array}$	$\begin{array}{c} 13 \\ 14 \end{array}$	13 14	13	14	13	14 15	14 15	14 15	12 13
14	13	13	13	13	14	14	14	14	14	15	15	15	15	16	16	16	16	14
$\frac{15}{16}$	$\frac{14}{14}$	$\frac{14}{15}$	$\frac{14}{15}$	$\frac{14}{15}$	$\frac{15}{15}$	$\frac{15}{16}$	$\frac{15}{16}$	$\frac{15}{16}$	$\frac{16}{17}$	$\frac{16}{17}$	$\frac{16}{17}$	$\frac{16}{17}$	$\frac{17}{18}$	$\frac{17}{18}$	$\frac{17}{18}$	$\frac{17}{18}$	$\frac{18}{19}$	$\frac{15}{16}$
17	15	16	16	16	16	17	17	17	18	18	18	18	19	19	19	20	20	17
18 19	16 17	17 17	17 18	17 18	17 18	18 19	18 19	18 19	19 20	19 20	$\begin{array}{c c} 19 \\ 20 \end{array}$	$\begin{array}{c c} 20 \\ 21 \end{array}$	$\begin{array}{c c} 20 \\ 21 \end{array}$	$\begin{array}{c c} 20 \\ 21 \end{array}$	20 22	$\begin{array}{c c} 21 \\ 22 \end{array}$	21 22	18 19
20	18	18	19	19	19	20	20	20	21	21	21	_ 22	22	22	23	23	23	20
$\begin{array}{c} 21 \\ 22 \end{array}$	19 20	19 20	$\frac{20}{21}$	20 21	20 21	$\begin{array}{c} 21 \\ 22 \end{array}$	$\begin{array}{c} 21 \\ 22 \end{array}$	$\frac{21}{22}$	$\frac{22}{23}$	22 23	22 23	23 24	23 24	23 25	24 25	24 25	$\begin{array}{c c} 25 \\ 26 \end{array}$	21 22
23	21	21	21	22	22	23	23	23	24	24	25	25	25	26	26	26	27	23
$\frac{24}{25}$	22 23	$\begin{vmatrix} 22 \\ 23 \end{vmatrix}$	$\frac{22}{23}$	$\frac{23}{24}$	23 24	$\begin{array}{c} 24 \\ 25 \end{array}$	24 25	24 25	25 26	$\frac{25}{26}$	$\begin{array}{c c} 26 \\ 27 \end{array}$	26 27	$\begin{array}{ c c } 26 \\ 28 \end{array}$	27 28	27 28	28 29	28 29	24 25
26	$\frac{20}{23}$	24	$\frac{26}{24}$	$\frac{24}{25}$	25	$\frac{26}{26}$	$\frac{26}{26}$	$\frac{26}{26}$	$\frac{20}{27}$	$\frac{20}{27}$	$\frac{27}{28}$	28	29	$\frac{20}{29}$	29	$\frac{23}{30}$	$\frac{23}{30}$	26
$\begin{array}{c} 27 \\ 28 \end{array}$	$\frac{24}{25}$	$\begin{vmatrix} 25 \\ 26 \end{vmatrix}$	$\begin{array}{c} 25 \\ 26 \end{array}$	26 27	26 27	$\frac{27}{28}$	27 28	27 28	28 29	28 29	29 30	29 30	30 31	30 31	31 32	31 32	32 33	27
29	26	27	27	28	28	29	29	29	30	30	31	31	32	32	33	33	34	28 29
30	27	28	28	29	29	30	30	31	31	32	32	33	33	34	34	35	35	30
$\frac{31}{32}$	28 29	28 29	29 30	29 30	30 31	30 31	31 32	32 33	32 33	33 34	33 34	34 35	34 35	35 36	35 36	36 37	36 37	$\begin{array}{c} 31 \\ 32 \end{array}$
33	30	30	31	31	32	32	33	34	34	35	35	36	36	37	37	38	39	33
34 35	$\begin{array}{c} 31 \\ 32 \end{array}$	$\begin{vmatrix} 31 \\ 32 \end{vmatrix}$	32	32 33	33 34	33 34	34 35	35 36	35 36	36 37	36 37	37	37	38 39	39 40	39 40	40	34 35
36	32	33	34	34	35	35	36	37	37	38	38	39	40	40	41	41	42	36
37 38	33 34	34 35	35	35 36	36	36 37	37 38	38	38 39	39 40	39	40	41 42	41 42	42	43	43	37 38
39	35	36	36	37	38	38	39	40	40	41	42	42	43	44	44	45	46	39
$\frac{40}{41}$	$\frac{36}{37}$	$\frac{37}{38}$	$\frac{37}{38}$	$\frac{38}{39}$	$\frac{39}{40}$	$\frac{39}{40}$	$\frac{40}{41}$	$\frac{41}{42}$	$\frac{41}{42}$	$\frac{42}{43}$	43	43	44 45	$\frac{45}{46}$	$\frac{45}{46}$	$\frac{46}{47}$	$\frac{47}{48}$	40
42	38	39	39	40	41	41	42	43	43	44	45	46	46	47	48	48	49	42
43 44	39 40	39 40	40	$\begin{array}{ c c } 41 \\ 42 \end{array}$	42 43	42 43	43	44 45	44 45	45 46	46	47 48	47	48 49	49 50	49 51	50 51	43 44
45	41	41	42	43	44	44	45	46	47	47	48	49	50	50	51	52	53	45
46 47	$\begin{array}{c} 41 \\ 42 \end{array}$	42 43	43 44	44 45	44 45	45 46	46 47	47	48 49	48	49	50	51	51	52 53	53 54	54 55	46
48	43	44	45	46	46	47	48	48 49	50	49 50	50	51 52	52 53	52 54	54	55	56	47 48
49 50	44 45	45 46	46 47	47 48	47 48	48	49 50	50 51	51 52	51 53	52	53	54	55	56	56	57	49
51	46	47	48	48	$\frac{48}{49}$	50	$\frac{50}{51}$	$\frac{51}{52}$	$\frac{52}{53}$	$\frac{53}{54}$	$\frac{53}{54}$	$\frac{54}{55}$	$\frac{55}{56}$	$\frac{56}{57}$	$\frac{57}{58}$	$\frac{58}{59}$	$\frac{58}{60}$	$\frac{50}{51}$
52 53	47	48	49	49	50	51	52	53	54	55	55	56	57	58	59	60	61	52
54	48 49	49 50	49 50	50	$\begin{vmatrix} 51 \\ 52 \end{vmatrix}$	52 53	53 54	54 55	55 56	56	57 58	57 59	58 59	59 60	60	61 62	62	53 54
55	50	50	51	52	53	54	55	56	57	58	59	60	61	61	62	63	64	55
56 57	50 51	51 52	52 53	53 54	54 55	55 56	56 57	57 58	58 59	59 60	60 61	$\begin{array}{c c} 61 \\ 62 \end{array}$	62 63	63 64	63 65	64	65 67	56 57
58	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	58
59 60	53 54	54 55	55. 56.	56	57 58	58	59 60	60	61 62	62	63 64	64 65	65	66	67	68	69 70	59 60

	1							1	Iorary	motion	١.							I
М.	71"	72"	78"	74"	75"	76"	77"	78"	79"	80"	81"	82"	83"	84"	85"	86"	87"	М.
1 2 3 4 5	1 2 4 5 6	1 2 4 5 6	1 2 4 5 6	1 2 4 5 6	1 3 4 5 6	1 3 4 5 6	1 3 4 5 6	1 3 4 5 7	1 3 4 5 7	1 3 4 5 7	1 3 4 5 7	1 3 4 5 7	1 3 4 6 7	1 3 4 6 7	1 3 4 6 7	1 3 4 6 7	1 3 4 6 7	1 2 3 4 5
6 7 8 9 10	7 8 9 11 12	7 8 10 11 12	7 9 10 11 12	7 9 10 11 12	8 9 10 11 13	8 9 10 11 13	8 9 10 12 13	8 9 10 12 13	8 9 11 12 13	8 9 11 12 13	8 9 11 12 14	8 10 11 12 14	8 10 11 12 14	8 10 11 13 14	9 10 11 13 14	9 10 11 13 14	9 10 12 13 15	6 7 8 9 10
11 12 13 14 15	13 14 15 17 18	13 14 16 17 18	13 15 16 17 18	14 15 16 17 19	14 15 16 18 19	14 15 16 18 19	14 15 17 18 19	14 16 17 18 20	14 16 17 18 20	15 16 17 19 20	15 16 18 19 20	15 16 18 19 21	15 17 18 19 21	15 17 18 20 21	16 17 18 20 21	16 17 19 20 22	16 17 19 20 22	11 12 13 14 15
16 17 18 19 20	19 20 21 22 24 25	19 20 22 23 24 25	19 21 22 23 24 26	20 21 22 23 25 26	20 21 23 24 25 26	20 22 23 24 25 27	21 22 23 24 26 27	21 22 23 25 26 27	21 22 24 25 26 28	21 23 24 25 27 28	22 23 24 26 27 28	22 23 25 26 27 29	22 24 25 26 28 29	22 24 25 27 28 29	23 24 26 27 28 30	23 24 26 27 29 30	23 25 26 28 29	16 17 18 19 20
22 23 24 25 26	26 27 28 30 31	26 28 29 30 31	27 28 29 30	27 28 30 31 32	28 29 30 31 33	28 29 30 32 33	28 30 31 32 33	29 30 31 33 34	29 30 32 33 34	29 31 32 33 35	30 31 32 34 35	30 31 33 34 36	30 32 33 35 36	31 32 34 35 36	31 33 34 35 37	$ \begin{array}{r} 32 \\ 33 \\ 34 \\ \hline 36 \\ \hline 37 \end{array} $	32 33 34 36 38	21 22 23 24 25 26
27 28 29 30 31	32 33 34 36 37	32 34 35 36 37	33 34 35 37 38	33 35 36 37 38	34 35 36 38 39	34 35 37 38 39	35 36 37 39 40	35 36 38 39 40	36 37 38 40 41	36 37 39 40 41	36 38 39 41 42	37 38 40 41 42	37 39 40 42 43	$ \begin{array}{r} 38 \\ 39 \\ 41 \\ \hline 42 \\ \hline 43 \end{array} $	38 40 41 43 44	39 40 42 43 44	39 41 42 44 45	27 28 29 30
32 33 34 35 36	38 39 40 41 43	38 40 41 42 43	39 40 41 43 44	39 41 42 43 44	40 41 43 44 45	41 42 43 44 46	41 42 44 45 46	42 43 44 46 47	$ \begin{array}{r} 42 \\ 43 \\ 45 \\ 46 \\ \hline 47 \end{array} $	43 44 45 47 48	43 45 46 47 49	44 45 46 48 49	44 46 47 48 50	45 46 48 49 50	45 47 48 50 51	46 47 49 50 52	46 48 49 51 52	32 33 34 35 36
37 38 39 40 41	44 45 46 47 49	44 46 47 48 49	45 46 47 49 50	46 47 48 49 51	46 48 49 .50	47 48 49 51 52	47 49 50 51 53	48 49 51 52 53	49 50 51 53 54	49 51 52 53 55	50 51 53 54 55	51 52 53 55 56	51 53 54 55 57	52 53 55 56 57	52 54 55 57 58	53 54 56 57 59	54 55 57 58 59	37 38 39 40
42 43 44 45 46	50 51 52 53 54	50 52 53 54 55	51 52 54 55 56	52 53 54 56 57	53 54 55 56 56	53 54 56 57 58	54 55 56 58 59	55 56 57 59 60	55 57 58 · 59	56 57 59 60	57 58 59 61 62	57 59 60 62 63	58 59 61 62 64	59 60 62 63 64	60 61 62 64 65	60 62 63 65 66	$ \begin{array}{c} 61 \\ 62 \\ 64 \\ 65 \\ \hline 67 \end{array} $	42 43 44 45 46
47 48 49 50 51	56 57 58 59 60	56 58 59 60	57 58 60 61 62	58 59 60 62 63	59 60 61 63	60 61 62 63 65	60 62 63 64 65	61 62 64 65 66	62 63 65 66 67	63 64 65 67 68	63 65 66 68 69	64 66 67 68 70	65 66 68 69 71	66 67 69 70	$ \begin{array}{c} 67 \\ 68 \\ 69 \\ 71 \\ \hline 72 \end{array} $	67 69 70 72 73	68 70 71 73 74	47 48 49 50
52 53 54 55 56	62 63 64 65 66	62 64 65 66 67	63 64 66 67 68	64 65 67 68	65 66 68 69 70	66 67 68 70	67 68 69 71 72	68 69 70 72 73	68 70 71 72 74	69 71 72 73 75	70 72 73 74 76	71 72 74 75	72 73 75 76 77	73 74 76 77 78	74 75 77 78 79	75 76 77 79 80	75 77 78 80 81	52 53 54 55 56
57 58 59 60	67 69 70 71	68 70 71 72	69 71 72 73	70 72 73 74	71 73 74 75	72 73 75 76	73 74 76 77	74 75 77 78	75 76 78 79	76 77 79 80	77 78 80 81	78 79 81 82	79 80 82 83	80 81 83 84	81 82 84 85	82 83 85 86	83 84 86 87	57 58 59 60

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TABLE 12.

	1								Horary	motion	ı.							_
M.	88"	89"	90"	91″	92"	93″	94"	95"	96"	97"	98"	99″	100"	101"	102"	103″	104″	м.
1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
3	3 4	$\frac{3}{4}$	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	3 5	$\frac{2}{3}$
4	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	4
5	$\frac{7}{9}$	$\frac{7}{9}$	$\frac{-8}{9}$	$\frac{8}{9}$	$-\frac{8}{9}$	$\frac{8}{9}$	$\frac{8}{9}$	$\frac{8}{10}$	$\frac{8}{10}$	$\frac{8}{10}$	$\frac{8}{10}$	$-\frac{8}{10}$	$\frac{8}{10}$	8	$-\frac{9}{10}$	9	9	5
6 7	10	10	11	11	11	11	11	11	11	11	11	12	12	10 12	12	$\begin{array}{c c} 10 \\ 12 \end{array}$	10 12	6
8	12	12	12	12	12	12	13	13	13	13	13	13	13	13	14	14	14	8
9 10	13 15	13 15	14 15	14 15	14 15	14 16	14 16	14 16	14 16	15 16	15 16	15 17	15 17	15 17	15 17	15 17	16 17	9
11	16	16	17	17	17	17	17	17	18	18	18	18	18	19	19	19	19	11
12 13	18 19	18 19	18 20	18 20	18 20	19 20	· 19 20	$\frac{19}{21}$	19 21	19 21	$\frac{20}{21}$	$\frac{20}{21}$	$\begin{array}{c c} 20 \\ 22 \end{array}$	$\begin{array}{c c} 20 \\ 22 \end{array}$	$\begin{array}{c} 20 \\ 22 \end{array}$	$\begin{array}{c c} 21 \\ 22 \end{array}$	$\frac{21}{23}$	12 13
14	21	21	21	21	21	22	22	22	22	23	23	23	23	24	24	24	24	14
$\frac{15}{16}$	22 23	$\frac{22}{24}$	$\frac{23}{24}$	$\frac{23}{24}$	$\frac{23}{25}$	$\frac{23}{25}$	$\frac{24}{25}$	$\frac{24}{25}$	$\frac{24}{26}$	$\frac{24}{26}$	$-\frac{25}{26}$	$\frac{25}{26}$	$-\frac{25}{27}$	$\frac{25}{27}$	$\frac{26}{27}$	$\frac{26}{27}$	$\frac{26}{28}$	$\frac{15}{16}$
17	25	25	26	26	26	26	27	27	27	27	28	28	28	29	29	29	29	17
18 19	26 28	27 28	27 29	27 29	28 29	28 29	28 30	29 30	29 30	$\frac{29}{31}$	29 31	30 31	$\frac{30}{32}$	30 32	31 32	31 33	31 33	18 19
20	29	30	30	30	31	31	31	32	32	32	33	33	33	34	34	34	35	20
$\begin{array}{c} 21 \\ 22 \end{array}$	31 32	31 33	32 33	32 33	32 34	33 34	33 34	33 35	34 35	34 36	34 36	35 36	35 37	35 37	36 37	36 38	36 38	21 22
23	34	34	35	35	35	36	36	36	37	37	38	38	38	39	39	39	40	23
24 25	35 37	36 37	36 38	36 38	37 38	37 39	38 39	38 40	38 40	39 40	39 41	40 41	40 42	40 42	41 43	41	42 43	24 25
26	38	39	39	39	$\frac{30}{40}$	$-\frac{38}{40}$	41	$\frac{40}{41}$	$-\frac{40}{42}$	$-\frac{40}{42}$	$-\frac{41}{42}$	43	43	44	$-\frac{45}{44}$	$\frac{45}{45}$	$\frac{45}{45}$	26
27	40	40	41	41	41	42	42	43	43	44	44	45	45	45	46	46	47	27
28 29	41 43	42 43	42 44	42 44	43 44	43 45	44 45	44 46	45 46	$\begin{array}{c} 45 \\ 47 \end{array}$	$\frac{46}{47}$	46 48	47 48	47 49	48 49	48 50	49 50	28 29
30	44	45	45	46	46	47	47	48	48	49	49	50	50	51	51	52	52	30
31 32	45 47	46 47	47 48	47 49	48 49	48 50	49 50	49 51	50 51	50 52	51 52	51 53	52 53	$\begin{array}{c} 52 \\ 54 \end{array}$	53 54	53 55	54 55	31 32
33	48	49	50	50	51	51	52	52	53	53	54	54	55	56	56	57	57	33
34 35	50 51	$\begin{array}{c} 50 \\ 52 \end{array}$	51 53	52 53	52 54	53 54	53 55	54 55	54 56	55 57	56 57	56 58	57 58	57 59	58 60	58	59 61	34 35
36	53	53	54	55	55	56	56	57	58	58	$\frac{-59}{59}$	59	60	$\frac{-60}{61}$	$\frac{-60}{61}$	$\frac{62}{62}$	$-\frac{62}{62}$	36
37 38	54 56	55 56	56 57	56 58	57 58	57 59	58 60	59 60	59 61	60 61	$\frac{60}{62}$	61 63	62	62 64	63 65	64 65	64 66	37 38
39	57	58	59	59	60	60	61	62	62	63	64	64	65	66	66	67	6 8	39
40	59 60	$\frac{59}{61}$	$\frac{60}{62}$	$\frac{61}{62}$	$\frac{61}{63}$	$\frac{62}{64}$	$\frac{63}{64}$	63	64	$\frac{65}{cc}$	65	66	$\frac{67}{69}$	67	68	<u>69</u>	69	40
42	62	62	63	64	64	65	66	$\begin{array}{c} 65 \\ 67 \end{array}$	66 67	66 68	67 69	68 69	68 70	69 71	70 71	$\begin{array}{c} 70 \\ 72 \end{array}$	71 73	41 42
43 44	63 65	64 65	65 66	65 67	66 67	67 68	67 69	68 70	69 70	70	. 70	71	72	72	73	74	75	43
45	66	67	68	68	69	70	71	71	72	71 73	$\begin{array}{c} 72 \\ 74 \end{array}$	73 74	73 75	74 76	75 77	76 77	76 78	44 45
46	67	68	69	70	71	71	72	73	74	74	75	76	77	77	78	79	80	46
47 48	69 70	70 71	$\frac{71}{72}$	71 73	$\begin{array}{c} 72 \\ 74 \end{array}$	73 74	74 75	74 76	75 77	$\begin{bmatrix} 76 \\ 78 \end{bmatrix}$	77 78	78 79	78 80	79 81	80 82	81 82	81 83	47 48
49	72	73	74	74	75	76	77	78	78	79	80	81	82	82	83	84	85	49
$\frac{50}{51}$	$\frac{73}{75}$	74 76	$\frac{75}{77}$	$\frac{76}{77}$	$\frac{77}{78}$	$\frac{78}{79}$	$\frac{78}{80}$	$\frac{79}{81}$	$\frac{80}{82}$	$\frac{81}{82}$	$\frac{82}{83}$	$\frac{83}{84}$	$\frac{83}{85}$	84 86	$\frac{85}{87}$	$\frac{86}{88}$	$\frac{87}{88}$	50 51
52	76	77	78	79	80	81	81	82	83	84	85	86	87	88	88	89	90	52
53 54	78 79	79 80	80 81	80 82	81 83	82 84	83 85	84 86	85 86	86 87	87 88	87 89	88 90	89 91	90 92	91 93	92 94	53 54
55	81	82	83	83	84	85	86	_87	88	89	90	91	92	93	94	94	95	55
56 57	82 84	83 85	84 86	85 86	86 87	87 88	88 89	89 9 0	90 91	91 92	91 93	92 94	93	94 96	95 97	96 98	97 99	56 57
58	85	86	87	88	89	90	91	92	93	94	95	96	95 97	98	99	100	101	58
59 60	87 88	88 89	89 90	90 91	90 92	91 93	92 94	93 95	94 96	95 97	96 98	97 99	98 100	99 101	$\frac{100}{102}$	101 103	102 104	59 60
00	00	00	00	01	02	00	04	30	30	31	30	ਹਰ	100	101	102	105	104	00

							Hora	ry motio	n.						1
м.	105″	106"	107″	108″	109″	110″	111″	112"	118"	114"	115"	116″	117"	118″	М.
1	2	2	2 4	2 4	2 4	2 4	2 4	2	2	2	2	2	2	2	1
2 3 4	4 5	4 5	5	5	5	6	6	4 6	4 6	6	4 6	4 6	6	4 6	$\frac{2}{3}$
4 5	7 9	7 9	7 9	7 9	7 9	7 9	7 9	7 9	8 9	8 10	8 10	8 10	8 10	8 10	1 2 3 4 5
6	11	11	11	11	11	11	11	11	11	11	12	12	12	12	$\frac{3}{6}$
7 8	12 14	12 14	12 14	13 14	13 15	13 15	13 15	13 15	13 15 17	13 15	13 15	14 15	14 16	14 16	6 7 8 9
9	16	16	16	16	16	17	17	17	17	17	17	17	18	18	9
10	$\frac{18}{19}$	$\frac{18}{19}$	$\frac{18}{20}$	$\frac{18}{20}$	$\frac{18}{20}$	18 20	$\frac{19}{20}$	$\frac{19}{21}$	$\frac{19}{21}$	$\frac{19}{21}$	$\frac{19}{21}$	$\frac{19}{21}$	$\frac{20}{21}$	$\frac{20}{22}$	10 11
12 13	21 23	21 23	21 23	20 22 23	22 24	22 24	$\begin{array}{c} 22 \\ 24 \end{array}$	$\begin{array}{c} 22 \\ 24 \end{array}$	$\begin{array}{c} 23 \\ 24 \end{array}$	23 25	23 25	23 25	23 25	24 26	11 12 13
14	25	25	25	25	25	26	26	26	26	27	27	27	27	28	14 15
15 16	$\frac{26}{28}$	$\frac{27}{28}$	$\frac{27}{29}$	$\frac{27}{29}$	$\frac{27}{29}$	$\frac{28}{29}$	$\frac{28}{30}$	$\frac{28}{30}$	28 30	29 30	$\frac{29}{31}$	$\frac{29}{31}$	29 31	$\frac{30}{31}$	15
17	30	30	30	31 32	31	31	31 33	32	32 34	32	33	33	33 35	33	16 17 18 19
18 19	32 33	32 34	$\begin{array}{c} 32 \\ 34 \end{array}$	$\frac{32}{34}$	33 35	33 35	33 35	34 35	36	34 36	35 36	35 37	37	$\frac{35}{37}$	18 19
20	$\frac{35}{37}$	$\frac{35}{37}$	$\frac{36}{37}$	36	36	37	37	$\frac{37}{39}$	38	38	38	39	39	39	20
$\begin{array}{c} 21 \\ 22 \end{array}$	39	39	39	38 40	38 40	39 40	39 41	41	40 41	40 42	40 42	41 43	41 43	41 43	21 22 23 24 25
23 24	40 42	41 42	41 43	41 43	42 44	42 44	43 44	43 45	43 45	44 46	44 46	44 46	45 47	45 47	23
25	44	44	45	45	45	46	46	47	47	48	48	48	49	49	25
26 27	46 47	46 48	46 48	47 49	47 49	48 50	48 50	49 50	49 51	49 51	50 52	50 52	51 53	51 53	26 27 28 29
28 29	49 51	49 51	50 52	50	51 53	51 53	52	52 54	51 53 55	53	54· 56	54	55	5 5	28
30	53	53	54	52 54	55	55	54 56	56	57	55 57	58	56 58	57 59	57 59	30
$\begin{array}{c} 31 \\ 32 \end{array}$	54 56	55 57	55 57	56 58	56 58	57 59	57 59	58 60	58 60	59 61	59 61	60 62	60 62	61 63	31
33	58	58	59	59	60	61	61	62	62	63	63	64	64	65	32 33 34
34 35	60 61	60 62	61 62	61 63	62 64	$\begin{array}{c} 62 \\ 64 \end{array}$	63 65	63	64 66	65 67	65 67	66 68	66 68	67 69	35
36 37	63 65	64 65	64 66	65 67	65 67	66 68	67 68	67 69		68	69	70	70	71	36 37 38
38 39	67	67	68	68	69	70	70	71	72	70 72	71 73	72 73	72 74	73 75	38
39 40	68 70	69 71	70 71	· 70 72	71 73	$\begin{array}{c c} 72 \\ 73 \end{array}$	$\begin{array}{c} 72 \\ 74 \end{array}$	73 75	68 70 72 73 75	74 76	75 77	75 77	76 78	77 79	39 40
41	72	$\frac{72}{74}$	73 75	74 76	74	75 77	76	77	77	78	79	79	80	81	41
42 43	74 75	76	77	77	76 78	79	78 80	78 80	79 81	80 82	81 82	81 83	82 84	83 85	41 42 43 44
44 45	77 79	78 80	78 80	79 81	80 82	81 83	81 83	82 84	81 83 85	84 86	84 86	85 87	86 88	87 89	44 45
46	81	81	82	83	84	84	85	86	87 89	87	88 90	89	90	90	46
47 48	82 84	83 85	84 86	85 86	85 87	86 88	87 89	88 90	89 90	89 91	$\begin{vmatrix} 90 \\ 92 \end{vmatrix}$	91 93	$\begin{array}{c c}92\\94\end{array}$	92 94	47
49	86	87	87	88	89	90	91	91	92	93	94	95	96	. 96 98	48 49 50
50 51	88	$\frac{88}{90}$	$\frac{89}{91}$	$\frac{90}{92}$	$\frac{91}{93}$	$\frac{92}{94}$	$\frac{93}{94}$	$\frac{93}{95}$	$\frac{94}{96}$	$\frac{95}{97}$	$\frac{96}{98}$	$\frac{97}{99}$	$\frac{98}{99}$	$\frac{98}{100}$	51
52 53	91 93	$\begin{array}{c} 92 \\ 94 \end{array}$	93 95	94 95	94 96	95 97	96 98	97 99	98 100	99 101	$\frac{100}{102}$	101 102	101 103	102 104	52
54	95	95	96	97	98	99	100	101	102	103	104	104	105	106	53 54
55	$\frac{96}{98}$	$\frac{97}{99}$	$\frac{-98}{100}$	$\frac{99}{101}$	$\frac{100}{102}$	$\frac{101}{103}$	$\frac{102}{104}$	$\frac{103}{105}$	$\frac{104}{105}$	$\frac{105}{106}$	$\frac{105}{107}$	$\frac{106}{108}$	$\frac{107}{109}$	$\frac{108}{110}$	55 56
57	100	101	102	103	104	105	105	106	107	108	109	110	111	112	57
58 59	102 103	102 104	103 105	104 106	105 107	106 108	$\begin{array}{c} 107 \\ 109 \end{array}$	108 110	109 111	110 112	111 113	112 114	$\begin{array}{c c} 113 & \\ 115 & \\ \end{array}$	114 116	58 59
60	105	106	107	108	109	110	111	112	113	114	115	116	117	118	60

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TABLE 12.

		-					Horai	y motio	n.						
М.	119"	120″	121"	122"	123"	124"	125"	126"	127"	128″	129"	130″	131"	132"	М.
1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
2 3	4 6	4° 6	4 6	4 6	$\frac{4}{6}$	$\begin{array}{c c}4\\6\end{array}$	4 6	4 6	4 6	4 6	4 6	47	4	47	2
4	8	8	8	8	8	8	8	8	8	9	9	9	9	9	1 2 3 4 5
5	10	10	10	10	10	10	10	11	11	11	11	11	11	11	
6 7	12 14	$\frac{12}{14}$	$\begin{array}{c} 12 \\ 14 \end{array}$	12 14	$\begin{array}{c} 12 \\ 14 \end{array}$	12 14	13	13 15	13 15	13	13 15	13 15	13 15	13 15	6
8	16	16	16	16	16	17	15 17	17	17	15 17	17	17	17	18	8
9 10	18 20	18 20	$\begin{array}{c} 18 \\ 20 \end{array}$	18 20	18 21	19 21	19 21	19 21	19 21	19 21	19 22	20 22	$\frac{20}{22}$	20 22	6 7 8 9 10
11	$\frac{20}{22}$	$\frac{20}{22}$	$\frac{20}{22}$	$-\frac{20}{22}$	23	23	$\frac{21}{23}$	23	$\frac{21}{23}$	23	24	$\frac{22}{24}$	24	24	11
12	24	24	24	24	25	25	23 25	25	23 25	26	26	26	26	26	12
13 14	26 28	26 28	26 28	26 28	27 29	27 29	27 29	27 29	28 30	28 30	28 30	28 30	28 31	29 31	13 14
15	30	30	30	31	31	31	31	32	32	32	32	33	33	33	15
16	32	32	32	33	33	33	33	34	34	34 36	34 37	35	35 37	35 37	16
17 18	34 36	34 36	34 36	35 37	35 37	35 37	35 38	36 38	36 38	38	39	37 39	39	40	17 18
19	38	38	38	39	39	39	40	40	40	41	41	41	41	42	19
$\frac{20}{21}$	$\frac{40}{42}$	$\frac{40}{42}$	$\frac{40}{42}$	$\frac{41}{43}$	$\frac{41}{43}$	$\frac{41}{43}$	$\frac{42}{44}$	$\frac{42}{44}$	$\frac{42}{44}$	43	43 45	$-\frac{43}{46}$	44 46	44 46	20
22	44	44	44	45	45	45	46	46	47	47	47	48	48	48	$\frac{21}{22}$ $\frac{23}{23}$
23	46	46	46	47	47	48	48 50	48	49 51	49	49 52	50	50 52	51 53	$\frac{23}{24}$
24 25	48 50	48 50	48 50	49 51	49 51	$\frac{50}{52}$	50 52	50 53	53	51 53	52 54	52 54	55 55	55 55	25
26	52	$\phantom{00000000000000000000000000000000000$	$\phantom{00000000000000000000000000000000000$. 53	53	54	54	55	55	55	56	56	57	57	
27 28	54 56	54 56	54	55 57	55 57	56 58	56 58	57 59	57 59	58 60	58 60	59 61	59 61	59 62	26 27 28 29
29	58	58	56 58	59	59	60	60	61	61	62	62	63	63	64	29
30	60	60	61	61	62	62	63	63	64	64	65	65	66	66	30
31 32	61 63	62 64	63 65	63 65	64 66	64 66	65 67	65 67	66 68	66 68	67 69	67 69	68 70	68 70	$\begin{array}{c} 31 \\ 32 \end{array}$
32 33	65	66	67	67	68	68	67 69	69	68 70 72	70	71	72	72	73 75	33
34 35	67 69	68 70	69 71	69 71	$\begin{array}{c} 70 \\ 72 \end{array}$	70 72	71 73	71 74	$\begin{array}{c} 72 \\ 74 \end{array}$	73 75	73 75	74 76	74 76	75	34 35
36	$\frac{-03}{71}$	$\frac{70}{72}$	73	73	74	74	$\frac{75}{75}$	76	$-\frac{74}{76}$	77	$-\frac{75}{77}$	78	79	79	36
37	73	74	75	75	76	76	75 77	78	76 78	79	80	80	81	81	37
38 39	75 77	76 78	77 79	77 79	78 80	79 81	79 81	80 82	80 83	81 83	82 84	82 85	83 85	84 86	38 39
40	77 79	80	81	81	82	83	83	84	83 85	85	86	87	85 87	88	40
41 42	81 83	82 84	83 85	83 85	84 86	85 87	85 88	86 88	87 89	87 90	88 90	89 91	90 92	90 92	41 42
43	85	86	87	87	88	89	90	90	91	92	92	93	94	95	43
44	87	88	89	89	90	91	92	92	93	94	95	95	96	97	44
$\frac{45}{46}$	$\frac{89}{91}$	$\frac{90}{92}$	$\frac{91}{93}$	$\frac{92}{94}$	$\frac{92}{94}$	$\frac{93}{95}$	$\frac{94}{96}$	95	95 97	$\frac{96}{98}$	97	$\frac{98}{100}$	98	$\frac{99}{101}$	45 46
47	93	94	95	96	96	97	98	99	99 102	100	101	102	103	103	47
48 49	95 97	96 98	97 99	98	98	99	100	101	102 104	102	103	104	105 107	106 108	48 49
50	99	100	101	100 102	100 103	101 103	102 104	103 105	104	105 107	105 108	106 108	107	1108	50
51	101	102	103	104	105	105	106	107	108	109	110	111	111	112	51
52 53	103 105	104 106	105 107	106 108	107 109	107 110	108 110	109 111	110 112	111 113	112 114	113 115	114 116	114 117	52 53
54	107	108	109	110	111	112	113	113	114	115	116	117	118	119	54
$\frac{55}{56}$	109	110	111	112	113	114	115	116	116	117	118	119	$\frac{120}{122}$	$\frac{121}{123}$	55
57	111 113	112 114	113 115	114 116	115 117	116 118	117 119	118	$\frac{119}{121}$	119 122	$\begin{array}{c} 120 \\ 123 \end{array}$	$\frac{121}{124}$	122	123	56 57
58	115	116	117	118	119	120	121	122	123	124	125	126	127	128	58
59 60	117 119	118 120	119 121	$\begin{array}{ c c c c }\hline 120 \\ 122 \\ \end{array}$	121 123	122 124	$123 \\ 125$	124 126	$125 \\ 127$	$\begin{array}{c c} 126 \\ 128 \end{array}$	$\begin{array}{c c} 127 \\ 129 \end{array}$	128 130	129 131	130 132	59 60
	110	120	141	122	120	124	120	120	. 121	120	123	100	101	102	00

	1						Hora	ry motic	n.						.,
М.	133"	134"	135"	136"	137"	138"	189"	140"	141"	142"	143"	144"	145"	146"	М.
1	2	2	2	2	2	2 5	2 5	2 5	2 5	2 5	$\begin{bmatrix} 2 \\ 5 \end{bmatrix}$	2	2 5	2	1
$\frac{2}{3}$	4 7	4 7	5 7	2 5 7	5 7	5 7	5 7	5 7	5 7	5 7	$\begin{bmatrix} 5 \\ 7 \end{bmatrix}$	5 7	5 7	5 7	$\frac{2}{3}$
4 5	9 11	9	9	9	9	9 12	9 12	9 12	9 12	9 12	10 12	10 12	10 12	10 12	2 3 4 5
$\frac{-6}{7}$	13	13	$\frac{11}{14}$	$\frac{11}{14}$	14	14	14	14	14	14	14	14	15	$\frac{12}{15}$	6
7 8	16 18	16 18	16 18	16 18	. 16 . 18	16 18	16 19	16 19	16 19	17 19	17 19	17 19	17 19	17 19	7 8
9	20	20	20	20	21	21	21	21	21	21	21	22	22	22	9
$\frac{10}{11}$	$\frac{22}{24}$	$\frac{22}{25}$	$\frac{23}{25}$	$\frac{23}{25}$	$\frac{23}{25}$	$\frac{23}{25}$	$\frac{23}{25}$	$\frac{23}{26}$	$\frac{24}{26}$	$\frac{24}{26}$	$\frac{24}{26}$	$\frac{24}{26}$	$\frac{24}{27}$	$\frac{24}{27}$	10 11
12 13	27 29	27 29	27 29	27	27	28 30	28	28	28	28	29	29	29	29	12
14	31	31	$\frac{29}{32}$	$\frac{29}{32}$	$\frac{30}{32}$	32	$\frac{30}{32}$	30 33	31 33	31 33	31 33	31 34	31 34	$\begin{array}{c} 32 \\ 34 \end{array}$	13 14
$\frac{15}{16}$	$\frac{33}{35}$	$\frac{34}{36}$	$\frac{34}{36}$	$\frac{34}{36}$	$\frac{34}{37}$	$\frac{35}{37}$	$\frac{35}{37}$	$\frac{35}{37}$	$\frac{35}{38}$	$\frac{36}{38}$	$\frac{36}{38}$	$\frac{36}{38}$	$\frac{36}{39}$	$\frac{37}{39}$	15 16
17	38	38	38	39	39	39	39	40	40	40	41	41	41	41	17
18 19	40 42	$\begin{array}{c} 40 \\ 42 \end{array}$	41 43	41 43	41 43	41 44	42	42 44	42 45	43 45	43 45	43 46	44 46	44 46	18 19
20	44	_45	45	45	46	46	46	47	47	47	48	48	48	49	20
$\begin{array}{c} 21 \\ 22 \end{array}$	47 49	47 49	47 50	48 50	48 50	48 51	49 51	49 51	49 52	50 52	50 52	50 53	51 53	51 54	21 22 23 24
$\begin{array}{c} 23 \\ 24 \end{array}$	51 53	51 54	$\begin{bmatrix} 52 \\ 54 \end{bmatrix}$	$\begin{bmatrix} 52 \\ 54 \end{bmatrix}$	53 55	53 55	53 56	54 56	54 56	54 57	55 57	55 58	56 58	56 58	23
25	55	56	56	57	57	58	58	58	59	59	60	60	60	61	25
26 27	58 60	58 60	59 61	59 61	59 62	60 62	60 63	61 63	61 63	62 64	62 64	62 65	63 65	63 66	26 27
28 29	62 64	63 65	63 65	63 66	64 66	64 67	65	65	66	66	67	67	68	68	28 29
30	67	67	68	68	69	69	67 70	68 70	$\frac{68}{71}$	69 71	$\begin{vmatrix} 69 \\ 72 \end{vmatrix}$	$\begin{bmatrix} 70 \\ 72 \end{bmatrix}$	70 73	$\begin{array}{c} 71 \\ 73 \end{array}$	30
31 32	69 71	69 71	$\begin{bmatrix} 70 \\ 72 \end{bmatrix}$	70 73	71 73	71 74	72 74	72 75	73 75	73 76	74 76	74 77	75 77	75 78	$\begin{array}{c} 31 \\ 32 \end{array}$
33	73	74	74	75	75	76	76	77	78	78	79	79	80	80	33
34 35	75 78	76 78	77 79	77 79	78 80	78 81	79 81	79 82	$\frac{80}{82}$	80 83	81 83	82 84	82 85	83 85	34 35
36 37	80	80	81 83	82	82	83	83	84	85	85	86	86	87	88	36
38	82 84	85	86	84 86	84 87	85 87	86 88	86 89	87 89	88 90	88 91	89 91	89 92	$\frac{90}{92}$	37 38
39 40	86 89	87 89	88 90	88 91	89 91	90 92	90 93	$\begin{vmatrix} 91 \\ 93 \end{vmatrix}$	$\begin{vmatrix} 92 \\ 94 \end{vmatrix}$	92 95	93 95	94 96	94 97	95 97	39 40
41	91	92	92	93	94	94	95	96	96	97	98	98	99	100	41
42 43	93 95	94 96	95 97	95 97	96 98	97 99	97 100	98 100	99	99	$\frac{100}{102}$	101 103	102 104	$\begin{array}{c} 102 \\ 105 \end{array}$	42 43
44 45	98 100	98 101	99	$\frac{100}{102}$	100 103	101 104	102 104	103 105	103 106	$\begin{bmatrix} 104 \\ 107 \end{bmatrix}$	105 107	106 108	106 109	107 110	44 45
46	102	103	104	104	105	106	107	107	108	109	110	110	111	112	46
47 48	104 106	105 107	106 108	107 109	107 110	108 110	109 111	110 112	110 113	111 114	112 114	113 115	114 116	114 117	47 48
49 50	109 111	109 112	110 113	111 113	112 114	113 115	114 116	114	115	116	117 119	118	118	119	49
51	113	114	115	116	116	117	118	119	118	$\begin{array}{c c} 118 \\ \hline 121 \end{array}$	$\frac{119}{122}$	$\begin{array}{c c} 120 \\ \hline 122 \end{array}$	$\begin{array}{c c} 121 \\ \hline 123 \end{array}$	$\frac{122}{124}$	$\frac{50}{51}$
52 53	115 117	116 118	117 119	118 120	119 121	$\frac{120}{122}$	$\frac{120}{123}$	$\frac{121}{124}$	$\begin{array}{c c} 122 \\ 125 \end{array}$	$\begin{vmatrix} 123 \\ 125 \end{vmatrix}$	124 126	$\frac{125}{127}$	$\frac{126}{128}$	$\frac{127}{129}$	52 53
54	120	121	122	122	123	124	125	126	127	128	129	130	131	131	54
$\frac{55}{56}$	$\frac{122}{124}$	$\begin{array}{c c} 123 \\ \hline 125 \end{array}$	$\frac{124}{126}$	$\frac{125}{127}$	$\begin{array}{c c} 126 \\ \hline 128 \end{array}$	$\begin{array}{c c} 127 \\ \hline 129 \end{array}$	$\frac{127}{130}$	$\frac{128}{131}$	$\begin{array}{c c} 129 \\ \hline 132 \end{array}$	$\frac{130}{133}$	$\begin{array}{c c} 131 \\ \hline 133 \end{array}$	$\begin{array}{c c} 132 \\ \hline 134 \end{array}$	$\frac{133}{135}$	$\frac{134}{136}$	$\frac{55}{56}$
57 58	126 129	127	128	129	130	131	132	133	134	135	136	137	138	139	57
59	131	130 132	131 133	131 134	$ \begin{array}{c c} 132 \\ 135 \end{array} $	133 136	134 137	135 138	136 139	$\begin{array}{c c} 137 \\ 140 \end{array}$	$\begin{array}{c c} 138 \\ 141 \end{array}$	$\begin{array}{c} 139 \\ 142 \end{array}$	$\begin{array}{c c} 140 \\ 143 \end{array}$	141 144	58 59
60	133	134	135	136	137	138	139	140	141	142	143	144	145	146	60

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TABLE 12.

	ı						Horar	y motio	n.						1
М.	147"	148″	149"	150″	151"	152"	153"	154"	155"	156"	157"	158″	159"	160″	М.
1	2	2	2	3	3	3	3	3	3	3	3	3	3	3	$\begin{array}{c}1\\2\\3\\4\end{array}$
2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
3	7	7	7	8	8	8	8	8	8	8	8	8	8	8	
4 5	10 12	$\frac{10}{12}$	$\begin{array}{c} 10 \\ 12 \end{array}$	10 13	10 13	10 13	10 13	ηρ 13	10 13	10 13	10 13	11 13	11 13	11 13	5
6	15	15	15	15	15	15	15	15	16	16	16	16	16	16	6
7	17	17	17	18	18	18	18	18	18	18	18	18	19	19	7
8	20	20	20	20	20	20	20	21	21	21	21	21	21	21	8
9	22	22	22	23	23	23	23	23	23	23	24	24	24	24	9
10	25	25	25	25	25	25	26	26	26	26	26	26	27	27	10
11	27	27	27	28	28	28	28	28	28	29	29	29	29	29	11
12	29	30	30	30	30	30	31	31	31	31	31	32	32	32	12
13	32	32	32	33	33	33	33	33	34	34	34	34	34	35	13
14	34	35	35	35	35	35	36	36	36	36	37	37	37	37	14
15	37	37	37	38	38	38	38	39	39	39	39	40	40	40	15
16	39	39	40	40	40	41	41	41	41	42	42	42	42	43	16
17	42	42	42	43	43	43	43	44	44	44	44	45	45	45	17
18	44	44	45	45	45	46	46	46	47	47	47	47	48	48	18
19	47	47	47	48	48	48	48	49	49	49	50	50	50	51	19
20	49	49	50	50	50	51	51	51	52	52	52	53	53	53	20
21	51	52	52	53	53	53	54	54	54	55	55	55	56	56	21
22	54	54	55	55	55	56	56	56	57	57	58	58	58	59	22
23	56	57	57	58	58	58	59	59	59	60	60	61	61	61	23
24	59	59	60	60	60	61	61	62	62	62	63	63	64	64	24
25	61	62	62	63	63	63	64	64	65	65	65	66	66	67	25
26	64	64	65	65	65	66	66	67	67	68	68	68	69	69	26
27	66	67	67	68	68	68	69	69	70	70	71	71	72	72	27
28	69	69	70	70	70	71	71	72	72	73	73	74	74	75	28
29	.71	72	72	73	73	73	74	74	75	75	76	76	77	77	29
30	74	74	75	75	76	76	77	77	78	78	79	79	80	80	30
31	76	76	77	78	78	79	79	80	80	81	81	82	82	83	31
32	78	79	79	80	81	81	82	82	83	83	84	84	85	85	32
33	81	81	82	83	83	84	84	85	85	86	86	87	87	88	33
34	83	84	84	85	86	86	87	87	88	88	89	90	90	91	34
35	86	86	87	88	88	89	89	90	90	91	92	92	93	93	35
36	88	89	89	90	91	91	92	92	93	94	94	95	95	96	36
37	91	91	92	93	93	94	94	95	96	96	97	97	98	99	37
38	93	94	94	95	96	96	97	98	98	99	99	100	101	101	38
39	96	96	97	98	98	99	99	100	101	101	102	103	103	104	39
40	98	99	99	100	101	101	102	103	103	104	105	105	106	107	40
41	100	101	102	103	103	104	105	105	106	107	107	108	109	109	41
42	103	104	104	105	106	106	107	108	109	109	110	111	111	112	42
43	105	106	107	108	108	109	110	110	111	112	113	113	114	115	43
44	108	109	109	110	111	111	112	113	114	114	115	116	117	117	44
45	110	111	112	113	113	114	115	116	116	117	118	119	119	120	45
46	113	113	114	115	116	. 117	117	118	119	120	120	121	122	123	46
47	115	116	117	118	118	119	120	121	121	122	123	124	125	125	47
48	118	118	119	120	121	122	122	123	124	125	126	126	127	128	48
49	120	121	122	123	123	124	125	126	127	127	128	129	130	131	49
50	123	123	124	125	126	127	128	128	129	130	131	132	133	133	50
51	125	126	127	128	128	129	130	131	132	133	133	134	135	136	51
52	127	128	129	130	131	132	133	133	134	135	136	137	138	139	52
53	130	131	132	133	133	134	135	136	137	138	139	140	140	141	53
54	132	133	134	135	136	137	138	139	140	140	141	142	143	144	54
55	135	136	137	138	138	139	140	141	142	143	144	145	146	147	55
56	137	138	139	140	141	142	143	144	145	146	147	147	148	149	56
57	140	141	142	143	143	144	145	146	147	148	149	150	151	152	57
58	142	143	144	145	146	147	148	149	150	151	152	153	154	155	58
59	145	146	147	148	148	149	150	151	.152	153	154	155	156	157	59
60	147	148	149	150	151	152	153	154	155	156	157	158	159	160	60

For finding the Sun's change of Right Ascension for any given number of hours.

Hourly					1	Number	of hours.						Hourly
varia- tion.	1	2	3	4	5	6	7	8	9	10	11	12	varia- tion.
8.	8.	8.	8.	8.	8.	8. 51 O	8. 50. 5	8. 69 O	8. 76. 5	s. 85. 0	8. 93. 5	s. 102. 0	8. 8.50
8. 50 8. 55	8. 5 8. 6	17. 0 17. 1	$25.5 \\ 25.7$	$\begin{array}{c c} 34.0 \\ 34.2 \end{array}$	$42.5 \\ 42.8$	51. 0 51. 3	59.5 59.9	68. 0 68. 4	77.0	85.5	94.1	102.6	8.55
8.60	8.6	17.2	25. 8	34. 4	43.0	51.6	60. 2	68.8	77.4	86.0	94.6	103. 2	8.60
8.65	8.7	17.3	26.0	34.6	43.3	51.9	60.6	69. 2	77.9	86.5	95. 2	103.8	8.65
8.70	8.7	17.4	26.1	34.8	43.5	52. 2	60.9	69.6	78.3	87.0	95.7	104.4	8.70
8.75	8.8	17.5	26.3	35.0	43.8	52.5	61. 3	70.0	78.8	87.5	96.3	105.0	8. 75
8.80	8.8	17.6	26. 4	35. 2	44.0	52.8	61.6	70.4	79.2	88.0	$96.8 \\ 97.4$	105.61 106.2	8. 80 8. 85
8. 85 8. 90	8.9	17.7	$ \begin{array}{c c} 26.6 \\ 26.7 \end{array} $	35. 4 35. 6	$44.3 \\ 44.5$	53. 1 53. 4	62.0 62.3	70.8 71.2	79. 7 80. 1	88. 5 89. 0	97.49	106. 2	8.90
8. 95	8. 9 9. 0	$17.8 \\ 17.9$	26. 9	35.8	44.8	53. 7	62.7	71. 6	80.6	89.5	98.5	107.4	8.95
9.00	9.0	18.0	27.0	36.0	45. 0	54.0	63.0	72.0	81.0	90.0	99.0	108.0	9.00
9.05	9.1	18.1	27. 2	36. 2	45.3	54.3	63. 4	72.4	81.5	90.5	99.6	108.6	9.05
9.10	9.1	18. 2	27.3	36.4	45.5	54.6	63.7	72.8	81.9	91.0	100.1	109.2	9.10
9.15	9.2	18.3	27. 5	36.6	45.8	54.9	64.1	73.2	82.4	91.5	100.7	109.8	9.15
9. 20	9.2	18.4	27.6	36.8	46.0	55.2	64.4	73.6	82.8	$\frac{92.0}{92.5}$	$\frac{101.2}{101.8}$	110.4	$\frac{9.20}{9.25}$
9.25	9.3	18.5	27. 8 27. 9	$\frac{37.0}{37.2}$	46.3	55. 5 55. 8	64. 8 65. 1	74.0 74.4	83. 3 83. 7	93.0	101. 8	111.0 111.6	9. 20
9.30 9.35	9. 3 9. 4	$18.6 \\ 18.7$	28.1	37. 4	46.5 46.8	56.1	65. 5	74. 8	84. 2	93. 5	102. 9	112. 2	9.35
9.40	9.4	18.8	28. 2	37. 6	47.0	56.4	65.8	75. 2	84.6	94.0	103.4	112.8	9.40
9.45	9.5	18.9	28.4	37.8	47.3	56.7	66.2	75.6	85.1	94.5	104.0	113.4	9.45
9.50	9.5	19.0	28.5	38.0	47.5	57.0	66. 5	76.0	85.5	95.0	104.5	114.0	9.50
9.55	9.6	19.1	28.7	38. 2	47.8	57.3	66.9	76.4	86.0	95. 5	105.1	114.6	9.55
9.60	9.6	19.2	28.8	38. 4	48.0	57.6	67.2	76.8	86.4	96.0	105.6 106.2	115.2	9. 60 9. 65
9.65	9.7 9.7	19.3 19.4	29.0 29.1	38. 6 38. 8	48.3 48.5	57. 9 58. 2	67. 6 67. 9	77. 2 77. 6	86. 9 87. 3	96. 5 97. 0	106. 2	115.8 116.4	9. 70
$\frac{9.70}{9.75}$	$\frac{9.7}{9.8}$	$\frac{19.4}{19.5}$	$\frac{29.1}{29.3}$	39.0	48.8	58.5	68.3	$\frac{77.0}{78.0}$	87.8	97.5	107.3	117.0	9.75
9. 73	9.8	19.6	29. 3	39. 2	49.0	58.8	68.6	78.4	88. 2	98.0	107.8	117.6	9. 80
9.85	9.9	19.7	29.6	39. 4	49.3	59.1	69.0	78.8	88.7	98.5	108.4	118. 2	9.85
9, 90	9.9	19.8	29.7	39.6	49.5	59. 4	69. 3	79. 2	89.1	99.0	108.9	118.8	9.90
9.95	10.0	19.9	29.9	39.8	49.8	59.7	69.7	79.6	89.6	99.5	109.5	119.4	9.95
10.00	10.0	20.0	30.0	40.0	50.0	60.0	70.0.	80.0	90.0	100.0	110.0	120.0	10.00
10.05	10.1	20. 1	30.2	40. 2	50.3	60.3	70.4	80.4	90.5	100.5 101.0	110.6 111.1	$\begin{vmatrix} 120.6 \\ 121.2 \end{vmatrix}$	10.05 10.10
10. 10 10. 15	$10.1 \\ 10.2$	20. 2 20. 3	30.3	40. 4 40. 6	50. 5 50. 8	60.6	70.7	80.8	91.4	101.5	111.7	121.8	10. 15
10. 10	10. 2	20. 4	30.6	40.8	51.0	61. 2	71.4	81.6	91.8	102.0	112. 2	122. 4	10. 20
10. 25	10.3	20.5	30.8	41.0	51.3	61.5	71.8	82.0	92.3	102.5	112.8	123.0	10. 25
10. 30	10. 3	20.6	30.9	41.2	51.5	61.8	72.1	82.4	92.7	103.0	113. 3	123.6	10.30
10.35	10.4	20.7	31.1	41.4	51.8	62.1	72.5	82.8	93. 2	103.5	113.9	124. 2	10.35
10.40	10.4	20.8	31.2	41.6	52.0	62.4	72.8	83. 2	93.6	104.0	114.4	124.8	10.40
10. 45	10.5	20.9	31.4	41.8	52.3	$\frac{62.7}{62.0}$	73. 2	83.6	94.1	$\frac{104.5}{105.0}$	115.0 115.5	$\frac{125.4}{126.0}$	10. 45
10. 50 10. 55	10. 5 10. 6	21.0 21.1	31. 5 31. 7	$42.0 \\ 42.2$	52. 5 52. 8	63. 0 63. 3	73. 5 73. 9	84.0	94. 5 95. 0	105.5	116.1	126.6	10.55
10.60	10.6	21. 2	31.8	42.4	53.0	63.6	74. 2	84.8	95. 4	106.0	116.6	127. 2	10.60
10.65	10.7	21.3	32.0	42.6	53.3	63. 9	74.6	85. 2	95. 9	106.5	117.2	127.8	10.65
10.70	10.7	21.4	32.1	42.8	53.5	64. 2	74.9	85.6	96.3	107.0	117.7	128. 4	10.70
10.75	10.8	21.5	32.3	43.0	53.8	64.5	75. 3	86.0	96.8	107.5	118.3	129.0	10.75
10.80	10.8	21.6	32.4	43.2	54.0	64.8	75.6	86.4	97.2	108.0	118.8	129.6	10.80
10.85	10.9	21.7	32.6	43.4	54.3	65.1	76. 0 76. 3	86.8	97.7	108.5 109.0	119.4 119.9	130. 2 130. 8	10. 85 10. 90
10.90 10.95	10.9 11.0	21. 8 21. 9	$\begin{vmatrix} 32.7 \\ 32.9 \end{vmatrix}$	43. 6 43. 8	54.5 54.8	65. 4 65. 7	76. 7	87.6	98.6	109.5	120.5	131. 4	10.95
11.00	11.0	22.0	33. 0	44.0	55.0	66.0	77.0	88.0	99.0	110.0	121.0	132.0	
11.05	11.1	22.1	33. 2	44. 2	55.3	66. 3	77.4	88. 4	99.5	110.5	121.6	132.6	11.05
11.10	11.1	22. 2	33. 3	44.4	55.5	66.6	77.7	88.8	99.9	111.0	122. 1	133. 2	11.10
11.15	11. 2	22.3	33.5	44.6	55.8	66. 9	78.1	89.2	100.4	111.5	122.7	133.8	
11. 20	11.2	22.4	33.6	44.8	56.0	67. 2	78.4	89.6	100.8	112.0	123. 2	134.4	
11. 25	11.3	22.5	33.8	45.0	56.3	67.5	78.8	90.0	101. 3 101. 7	112.5 113.0	$123.8 \\ 124.3$	135. 0 135. 6	
11.30 11.35	11.3 11.4	$\begin{vmatrix} 22.6 \\ 22.7 \end{vmatrix}$	33.9	45. 2 45. 4	56.5	67.8	79.1	90.4	101.7	113. 0	124. 3	136. 2	11.35
11. 40	11.4	22. 8	34. 2	45.6	57.0	68.4	79.8	91. 2	102.6	114.0	125.4	136.8	11.40
11. 45	11.5	22.9	34.4	45.8	57.3	68.7	80. 2	91.6	103.1		126.0	137.4	11.45
	·			1		1				L	1	J	-

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TABLE 13.

For finding the Sun's change of Right Ascension for any given number of hours.

Hourly						Number	of hours.						Hourly
varia- tion.	13	14	15	16	17	18	19	20	21	22	23	24	varia- tion.
8.	8. 710 F	8.	8. 107 E	8. 196 O	8. 144 5	8. 153. 0	8. 161. 5	8. 170. 0	8. 170 K	8. 107 A	195. 5	8,	8.
8. 50 8. 55	110.5 111.2	119. 0 119. 7	$127.5 \\ 128.3$	136. 0 136. 8	144. 5 145. 4	153. 0	$161.5 \\ 162.5$	170.0	$178.5 \\ 179.6$	187. 0 188. 1	196. 7	$\begin{vmatrix} 204.0 \\ 205.2 \end{vmatrix}$	8. 50 8. 55
8. 60	111.8	120. 4	129.0	137.6	146. 2	154.8	163. 4	172.0	180.6	189. 2	197.8	206.4	8. 60
8.65	112.5	121.1	129.8	138.4	147.1	155. 7	164.4	173.0	181.7	190.3	199.0	207.6	8.65
8. 70	113.1	121.8	130.5	139. 2	147. 9	156.6	165.3	174.0	182.7	191.4	200.1	208.8	8.70
8.75	113.8	$122.5 \\ 123.2$	131. 3 132. 0	140. 0 140. 8	148. 8 149. 6	157. 5 158. 4	166. 3 167. 2	175.0 176.0	183. 8 184. 8	192. 5 193. 6	201.3 202.4	210.0 211.2	8.75
8. 80 8. 85	114. 4 115. 1	123. 2	132. 8	141.6	150.5	159.3	168. 2	177.0	185.9	193. 0	203.6	211. 2	8. 80 8. 85
8. 90	115. 7	124.6	133.5	142.4	151.3	160. 2	169.1	178.0	186.9	195.8	204. 7	213.6	8.90
8. 95	116.4	125.3	134.3	143. 2	152. 2	161.1	170.1	179.0	188.0	196.9	205.9	214.8	8.95
9, 00	117.0	126.0	135.0	144.0	153.0	162.0	171.0	180.0	189.0	198.0	207.0	216.0	9.00
9.05	117.7	126.7	135.8 136.5	144.8 145.6	153. 9 154. 7	162. 9 163. 8	$172.0 \\ 172.9$	181. 0 182. 0	190. 1 191. 1	199. 1 200. 2	208. 2 209. 3	217.2	9.05
9. 10 9. 15	118.3 119.0	127. 4 128. 1	137.3	146. 4	155. 6	164. 7	173. 9	183. 0	192. 2	201.3	210. 5	218. 4 219. 6	9. 10 9. 15
9. 20	119.6	128. 8	138.0	147. 2	156.4	165. 6	174.8	184.0	193. 2	202. 4	211.6	220.8	9. 20
9. 25	120.3	129.5	138.8	148.0	157.3	166.5	175.8	185.0	194.3	203.5	212.8	222.0	9.25
9. 30	120.9	130.2	139.5	148.8	158.1	167.4	176. 7	186.0	195. 3	204.6	213.9	223. 2	9.30
9.35	121.6	130. 9	140.3	149. 6 150. 4	159. 0 159. 8	168.3 169.2	177. 7 178. 6	187. 0 188. 0	196. 4 197. 4	205. 7 206. 8	215. 1 216. 2	224.4	9.35
9. 40 9. 45	122.2 122.9	131.6 132.3	$141.0 \\ 141.8$	150.4	160.7	170.1	179.6	189.0	198.5	200. 8	217. 4	225. 6 226. 8	9. 40 9. 45
9. 50	$\frac{123.5}{123.5}$	133.0	$\frac{142.5}{142.5}$	152.0	161.5	171.0	180.5	190.0	199.5	209.0	$\frac{218.5}{218.5}$	228.0	9.50
9.55	124. 2	133. 7	143.3	152.8	162. 4	171.9	181.5	191.0	200.6	210.1	219.7	229. 2	9.55
9.60	124.8	134.4	144.0	153.6	163.2	172.8	182. 4	192.0	201.6	211.2	220.8	230.4	9.60
9.65	125.5	135.1	144.8	154.4	164.1	173.7	183. 4	193.0	202. 7	212.3	222.0	231.6	9.65
9.70	$\frac{126.1}{196.9}$	135.8	$\frac{145.5}{146.3}$	155. 2	$\frac{164.9}{165.8}$	$\frac{174.6}{175.5}$	$\frac{184.3}{185.3}$	194.0	203. 7	$\frac{213.4}{214.5}$	$\frac{223.1}{224.3}$	232.8	9.70
9. 75 9. 80	126. 8 127. 4	$136.5 \\ 137.2$	140.3	156. 0 156. 8	166. 6	176. 4	186. 2	195. 0 196. 0	204. 8 205. 8	214. 5	225. 4	234. 0 235. 2	9.75 9.80
9. 85	128. 1	137.9	147.8	157.6	167.5	177.3	187. 2	197. 0	206. 9	216. 7	226.6	236.4	9. 85
9.90	128.7	138.6	148.5	158.4	168.3	178.2	188.1	198.0	207. 9	217.8	227.7	237.6	9.90
9.95	129. 4	139.3	149.3	159. 2	169. 2	$\frac{179.1}{100000000000000000000000000000000000$	189.1	199.0	209.0	218.9	228. 9	238.8	9.95
10.00	130. 0	140.0	150.0	160.0	170.0	180.0	190.0	200.0	210.0	220.0	230.0 231.2	240.0	10.00
10.05 10.10	130. 7 131. 3	140. 7 141. 4	150.8 151.5	160. 8 161. 6	170.9 171.7	180. 9 181. 8	191. 0 191. 9	201. 0 202. 0	$\begin{vmatrix} 211.1\\ 212.1 \end{vmatrix}$	221.1 222.2	232. 3	241. 2 242. 4	10.05 10.10
10. 15	132.0	142.1	152.3	162. 4	172.6	182.7	192.9	203.0	213. 2	223. 3	233.5	243.6	10. 15
10. 20	132.6	142.8	153.0	163. 2	173.4	183.6	193.8	204.0	214. 2	224.4	234.6	244.8	10. 20
10. 25	133.3	143.5	153.8	164.0	174.3	184.5	194.8	205.0	215.3	225.5	235.8	246.0	10. 25
10. 30	133.9	144. 2	154.5	164.8	175.1	185.4	195.7	206. 0	216.3 217.4	226.6 227.7	236. 9 238. 1	247.2	10.30
10. 35 10. 40	134. 6 135. 2	144.9 145.6	155.3 156.0	165. 6 166. 4	176. 0 176. 8	186.3 187.2	196. 7 197. 6	208.0	218. 4	228.8	239. 2	248. 4 249. 6	10. 35 10. 40
10. 45	135.9	146.3	156.8	167. 2	177.7	188.1	198.6	209.0	219.5	229.9	240. 4	250.8	10. 45
10.50	136.5	147.0	157.5	168.0	178.5	189.0	199.5	210.0	220.5	231.0	241.5	252.0	10.50
10.55	137. 2	147.7	158.3	168.8	179.4	189.9	200.5	211.0	221.6	232. 1	242.7	253. 2	10.55
10. 60 10. 65	137. 8 138. 5	148. 4 149. 1	159. 0 159. 8	169.6 170.4	180. 2 181. 1	190.8 191.7	201. 4 202. 4	212. 0 213. 0	$\begin{bmatrix} 222.6 \\ 223.7 \end{bmatrix}$	233. 2 234. 3	243. 8 245. 0	254. 4 255. 6	10.60 10.65
10. 00	139. 1	149. 1	160.5	170.4	181. 9	192.6	203. 3	214.0	224. 7	235. 4	246. 1	256.8	10. 70
10.75	139.8	150.5	161. 3	172.0	182. 8	193.5	204.3	$\frac{215.0}{215.0}$	225.8	236.5	$\frac{247.3}{247.3}$	258.0	10.75
10.80	140.4	151.2	162.0	172.8	183.6	194. 4	205.2	216.0	226.8	237.6	248.4	259. 2	10.80
10.85	141.1	151.9	162. 8	173.6	184.5	195.3	206. 2	217.0	227.9	238. 7	249.6	260.4	10.85
	141.7		163. 5 164. 3	174.4 175.2	185. 3 186. 2	196.2	207. 1 208. 1	218. 0 219. 0	228. 9 230. 0	239. 8 240. 9	250. 7 251. 9	261. 6 262. 8	10.90
10.95 11.00	$\frac{142.4}{143.0}$	$\frac{153.3}{154.0}$	$\frac{164.3}{165.0}$	$\frac{175.2}{176.0}$	187. 0	$\frac{197.1}{198.0}$	$\frac{208.1}{209.0}$	$\frac{219.0}{220.0}$	231.0	$\frac{240.9}{242.0}$	253. 0	264.0	10.95
11.05	143. 7	154.7	165.8	176.8	187.9	198. 9	210. 0	221.0	232. 1	243. 1	254. 2	265. 2	11.05
11.10	144.3	155.4	166.5	177.6	188.7	199.8	210.9	222.0	233. 1	244. 2	255.3	266: 4	11.10
11. 15	145.0	156.1	167.3	178.4	189.6	200.7	211.9	223.0	234. 2	245.3	256.5	267.6	11. 15
11. 20	145.6	156.8	168.0	179. 2	190.4	201.6	212.8	224.0	235. 2	246. 4	257.6	268.8	11.20
11. 25 11. 30	146. 3 146. 9	157. 5 158. 2	168. 8 169. 5	180. 0 180. 8	191. 3 192. 1	202. 5 203. 4	213. 8 214. 7	225. 0 226. 0	236. 3 237. 3	247. 5 248. 6	258.8 259.9	270. 0 271. 2	11. 25 11. 30
11.35	147.6	158. 9	170.3	181.6	193. 0	204. 3	215.7	227. 0	238. 4	249.7	261.1	272.4	11.35
11.40	148.2	159.6	171.0	182.4	193.8	205. 2	216.6	228.0	239.4	250.8	262. 2	273.6	11.40
11.45	148.9	160.3	171.8	183. 2	194. 7	206. 1	217.6	229.6	240.5	251.9	263.4	274.8	11.45

TABLE 14.

Dip of	the Sea
Hor	izon.
Height of	Dip of the
the Eye.	Horizon.
Feet. 1 2 3 4 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 22 23 24 25 26 27 28 29 30 31 32 33 34 35 60 65 70 75 80 85 90 95 100	7 59 3 1 2 2 2 4 5 6 6 5 5 2 2 7 3 3 8 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3

TABLE 15. Dip of the Sea at different Distances from the Observer.

		Height	of the Eye	above the	Sea in Fee	t.	
5	10	15	20	25	30	35	40
,	,	,	,	,	,	,	,
11	23	34	45	57	68	79	91
6	12	17		28	34	40	45
4	8	12	15	19	23	27	30
3	6	9	12	15	17	20	23
3	5	7	10	12	14	16	19
3	4	6	8	10	12	14	16
2	4	5	7		9	11	12
2	3	4	6	7	8	9	10
2	3	4	5	6	7	8	9
2	3	4	5	6	6	7	8 7
2	3	4	5	5	6	7	7
2	3	4	4	5	6	6	7
2	3	4	4	5	5	6	6
	, 11 6 4 3 3 2 2 2 2 2	11 23 6 12 4 8 8 3 6 3 3 5 3 4 2 4 2 3 2 3 2 3 2 3 2 3	5 10 15 11 23 34 6 12 17 4 8 12 3 6 9 3 5 7 3 4 6 2 4 5 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4 2 3 4	5 10 15 20 , , , , , 11 23 34 45 6 12 17 23 4 8 12 15 3 6 9 12 3 4 6 8 12 4 4 4 6 8 7 10 3 4 6 8 7 2 3 4 6 8 2 3 4 6 8 2 3 4 5 7 2 3 4 5 7 2 3 4 5 4 5 3 4 5 4 5 3 4 5 3 4 5 3 4 5 3 4 4 5 3 4 4 5 3 4 4 5 3 4 4 5 3 4 4 5 3 4	5 10 15 20 25 11 23 34 45 57 6 12 17 23 28 4 8 12 15 19 3 6 9 12 15 3 4 6 8 10 2 4 5 7 8 2 3 4 6 7 2 3 4 5 6 2 3 4 5 6 2 3 4 5 5 2 3 4 5 5 2 3 4 5 5 2 3 4 5 5 2 3 4 4 5	5 10 15 20 25 30 11 23 34 45 57 68 6 12 17 23 28 34 4 8 12 15 19 23 3 6 9 12 15 17 3 4 6 8 10 12 14 3 4 6 8 10 12 2 2 3 4 6 7 8 9 2 3 4 5 6 7 8 2 3 4 5 6 6 6 2 3 4 5 5 6 6 2 3 4 4 5 6 6	11 23 34 45 57 68 79 6 12 17 23 28 34 40 4 8 12 15 19 23 27 3 6 9 12 15 17 20 3 5 7 10 12 14 16 3 4 6 8 10 12 14 2 4 5 7 8 9 11 2 3 4 6 7 8 9 2 3 4 5 6 7 8 2 3 4 5 6 6 7 2 3 4 5 6 6 7 2 3 4 5 6 6 7 3 4 5 6 6

Note to Table 15.—The numbers of this Table below the black lines are the same as are given in Table 14, the visible horizon corresponding to those heights not being so far distant as the land.

TABLE 16. The Sun's Parallax in Altitude.

Parallax.
"
- 9
9
8
8 -
7
6 -
5
4
4
3
2
2
1
0

TABLE 17.

Parallax in Altitude of a Planet.

		Latalità III Illitatio di a Liano.
·əpn	iiiſA	0.000000000000000000000000000000000000
	35"	017245678
	30″	0112344564789995589999999999999999999999999999999
	861	01123455678990112456789901346
	"25	0112345567789917234577
	56″	\$25,55,55,55,55,55,55,55,55,55,55,55,55,5
	25"	55555555555555555555555555555555555555
	<u>*</u>	44810881791481110817799488810
	23"	888888888888888888888888888888888888888
	%G1	222 221 221 221 221 221 221 231 241 241 241 241 241 241 241 241 241 24
	21"	1108779711111111111111111111111111111111
	20%	000000000000000000000000000000000000000
	19″	01123344234100876000448891110
net.	18″	887574883110008799448831110
of plan	12"	77796488888100000000000000000000000000000000
llax o	16″	00000000000000000000000000000000000000
Horizontal parallax of planet	15"	
Izonta	14"	448311100000877.000448883311100
Hor	13"	£££5;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
	15"	931100 931100 931100 931100
	"11	1110000888777990044888888881100
	10″	0000088777700004488888888111100
l l	6	000000000004440000000000
	%	∞∞∞८८००००००० 444000000000000000000000000000
	2	
	9	\$
	2"	₽₽₽₽
	##	4440000000000000000
	3%	00000000000000000000000000000000000000
	151	000000000000000000000000000000000000000
	1"	
'əpn	Altit	0.000000000000000000000000000000000000

TABLE 18.

Augmentation of the Moon's Semidiameter.

TABLE 19.

Augmentation of the Moon's Horizontal Parallax.

de de			D's Semid	liameter.			e of va-	n's	Hor, Paral	lax.
Apparent altitude of D.	14'	15	′	1	6'	17′	itud bser on.			
Apj of	30″	0"	30″	0"	30″	0"	Latitude of observa- tion.	58′	57′	61′
0	0.1	0. 1	$0.1 \\ 0.7 \\ 1.2 \\ 1.7$	0.1	0. 2	0. 2	0	0. 0	0. 0	0. 0
2	0.6	0. 6		0.7	0. 8	0. 8	2	0. 0	0. 0	0. 0
4	1.0	1. 1		1.3	1. 4	1. 5	4	0. 1	0. 1	0. 1
6 8	$\begin{array}{c} 1.5 \\ 2.0 \end{array}$	$\begin{array}{c} 1.6 \\ 2.1 \end{array}$	2.3	1. 9 2. 4	2. 0 2. 6	$\begin{array}{c} 2.1 \\ 2.7 \end{array}$	6 8	0.1	$\begin{array}{c} 0.1 \\ 0.2 \end{array}$	$0.1 \\ 0.2$
10	2. 4	2. 6	2.8	3. 0	3. 2	3. 4	10	0. 3	0.3	0. 4
12	2. 9	3. 1	3.3	3. 6	3. 8	4. 0	12	0. 5	0.5	0. 5
14	3. 4	3. 6	3.9	4. 1	4. 4	4. 7	14	0. 6	0.7	0. 7
16	3. 8	4. 1	4.4	4. 7	5. 0	5. 3	16	0. 8	0.9	0. 9
18	4. 3	4. 6	4.9	5. 2	5. 6	5. 9	18	1. 0	1.1	1. 1
20	4. 7	5. 1	5. 4	5. 8	6. 1	6.5	20	1. 2	1. 3	1. 4
22	5. 2	5. 5	5. 9	6. 3	6. 7	7.1	22	1. 5	1. 6	1. 7
24	5. 6	6. 0	6. 4	6. 8	7. 3	7.7	24	1. 7	1. 9	2. 0
26	6. 0	6. 5	6. 9	7. 4	7. 8	8.3	26	2. 0	2. 2	2. 3
28	6. 5	6. 9	7. 4	7. 9	8. 4	8.9	28	2. 3	2. 5	2. 6
30	6, 9	7. 3	7. 9	8. 4	8. 9	9. 5	30	2. 6	2. 8	3. 0
32	7, 3	7. 8	8. 3	8. 9	9. 4	10. 0	32	2. 9	3. 1	3. 4
34	7, 7	8. 2	8. 8	9. 4	10. 0	10. 6	34	3. 3	3. 5	3. 8
36	8, 1	8. 6	9. 2	9. 8	10. 5	11. 1	36	3. 6	3. 9	4. 1
38	8, 4	9. 0	9. 7	10. 3	10. 9	11. 6	38	4. 0	4. 3	4. 6
40	8. 8	9. 4	10. 1	10. 7	11. 4	12. 1	40	4. 3	4. 6	5. 0
42	9. 2	9. 8	10. 5	11. 2	11. 9	12. 6	42	4. 7	5. 0	5. 4
44	9. 5	10. 2	10. 9	11. 6	12. 3	13. 1	44	5. 0	5. 4	5. 8
46	9. 8	10. 5	11. 3	12. 0	12. 8	13. 6	46	5. 4	5. 8	6. 2
48	10. 2	10. 9	11. 6	12. 4	13. 2	14. 0	48	5. 8	6. 2	6. 6
50	10. 5	11. 2	12. 0	12. 8	13. 6	14. 4	50	6. 1	6. 6	7. 1
52	10. 8	11. 5	12. 3	13. 1	14. 0	14. 9	52	6. 5	7. 0	7. 5
54	11. 1	11. 8	12. 7	13. 5	14. 4	15. 3	54	6. 8	7. 4	7. 9
56	11. 3	12. 1	13. 0	13. 8	14. 7	15. 6	56	7. 2	7. 7	8. 3
58	11. 6	12. 4	13. 3	14. 1	15. 1	16. 0	58	7. 5	8. 1	8. 6
60	11. 8	12. 7	13. 5	14. 4	15. 4	16. 3	60	7. 8	8. 4	9. 0
62	12. 1	12. 9	13. 8	14. 7	15. 7	16. 6	62	8. 1	8. 8	9. 4
64	12. 3	13. 2	14. 1	15. 0	16. 0	16. 9	64	8. 4	9. 1	9. 7
66	12. 5	13. 4	14. 3	15. 2	16. 2	17. 2	66	8. 7	9. 4	10. 0
68	12. 7	13. 6	14. 5	15. 5	16. 5	17. 5	68	9. 0	9. 7	10. 3
70	12. 9	13. 8	14. 7	15. 7	16. 7	17. 7	70	9. 2	9. 9	10. 6
72	13. 0	13. 9	14. 9	15. 9	16. 9	17. 9	72	9. 5	10. 2	10. 9
74	13. 1	14. 1	15. 0	16. 0	17. 1	18. 1	74	9. 7	10. 4	11. 1
76	13. 3	14. 2	15. 2	16. 2	17. 2	18. 3	76	9. 8	10. 6	11. 3
78	13. 4	14. 3	15. 3	16. 3	17. 4	18. 4	78	10. 0	10. 8	11. 5
80	13. 5	14. 4	15. 4	16. 4	17. 5	18. 6	80	10. 1	10. 9	11. 7
82	13. 5	14. 5	15. 5	16. 5	17. 6	18. 7	82	10. 3	11. 0	11. 8
84	13. 6	14. 6	15. 6	16. 6	17. 6	18. 7	84	10. 3	11. 1	11. 9
86	13. 6	14. 6	15. 6	16. 6	17. 7	18. 8	86	10. 4	11. 2	12. 0
88	13. 7	14. 6	15. 6	16. 7	17. 7	18. 8	88	10. 4	11. 2	12. 0
90	13.7	14. 6	15.6	16. 7	17. 7	18.8	90	10.5	11.3	12.0

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TABLE 20A.

Mean Refraction.

[Barometer, 30 inches. Fahrenheit's Thermometer, 50°.]

Apparent Altitude.	Mean Re- fraction.	Apparent Altitude.	Mean Re- fraction.	Apparent Altitude.	Mean Re- fraction.	Apparent Altitude.	Mean Re- fraction.	Apparent Altitude.	Mean Re- fraction.
0 ,	, "	0 7	, ,,	° ' 15 00	3 34.1	° ' 25 00	9 4 4	° ′ 42 00	1 04.7
0 00	36 29.4	9 30 35	5 35.1 5 32.4	- 10	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	10	$ \begin{array}{cccc} 2 & 4.4 \\ 2 & 3.4 \end{array} $	20	1 04.7
1 00	24 53.6	40	5 29.6	20	3 29.4	20	$\begin{array}{ccc} 2 & 3.4 \\ 2 & 2.5 \end{array}$	40	1 03. 2
$\frac{1}{2} \frac{00}{00}$	18 25.5	$\tilde{45}$	5 27.0	30	3 27. 1	30	2 1.6	43 00	1 02.4
3 00	14 25.1	50	5 24.3	40	3 24.8	40	2 0.7	20	1 01.7
4 00	11 44.4	55	5 21.7	50	3 22.6	50	1 59.8	40	1 01.0
5 00	9 52.0	10 00	5 19.2	16 00	3 20.5	26 00	1 58. 9	44 00	1 00.3
05	9 44.0	05	5 16.7	10	3 18.4	10	1 58.1	20	0 59.6
10	9 36.2	10 15	$5\ 14.2$ $5\ 11.7$	20 30	$\begin{array}{c} 3 & 16.3 \\ 3 & 14.2 \end{array}$	20 30	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	40 45 00	$\begin{array}{c} 0 \ 58.9 \\ 0 \ 58.2 \end{array}$
$\frac{15}{20}$	$\begin{array}{cccc} 9 & 25. \\ 9 & 21. & 2 \end{array}$	20	5 9.3	40	3 12.2	40	1 55.5	20	0 57.6
25	9 14.0	$\frac{25}{25}$	5 6.9	50	3 10.3	50	1 54.7	40	0 56.9
5 30	9 7.0	10 30	5 4.6	17 00	3 8.3	27 00	1 53.9	46 00	0 56.2
35	9 0.1	35	$5 \ \ 2.3$	10	3 6.4	10	1 53.1	20	0 55.6
40	8 53.4	40	5 0.0	20	3 4.6	20	152.3	740	0 55.0
45	8 46.8	45	4 57.8	30	3 2.8	30	$1\ 51.5$	47 00	0 54.3
50	8 40.4	50	4 55.6	40	3 1.0	40	1 50.7	20	0 53.7
55	8 34.2	55_	4 53.4	50	2 59.2	50	1 50.0	40	0 53.1
6 00	8 28.0	11 00	4 51.2	18 00	$\begin{array}{cccc} 2 & 57.5 \\ 2 & 55.8 \end{array}$	$\begin{array}{ccc} 28 & 00 \\ & 20 \end{array}$	149.2 147.7	48 00 49 00	$\begin{array}{c} 0 \ 52.5 \\ 0 \ 50.6 \end{array}$
05 10	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 05 \\ 10 \end{array}$	4 49.1 4 47.0	$\frac{10}{20}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	40	1 46.2	50 00	0 48.9
15	8 10. 5	15	4 44.9	30	2 52.4	29 00	1 44.8	51 00	0 47. 2
20	8 4.8	20	4 42.9	40	2 50.8	20	1 43. 4	52 00	0 45.5
25	7 59.3	25	4 40.9	50	2 49.2	40	1 42.0	53 00	0 43.9
6 30	7 53.9	11 30	4 38.9	19 00	2 47.7	30 00	1 40.6	54 00	0 42.3
35	7 48.7	35	4 36.9	10	2 46.1	- 20	1 39.3	55 00	0 40.8
40	7 43.5	40	4 35.0	20	2 44.6	40	1 38.0	56 00	0 39.3
45	7 38.4	45	4 33.1	30	2 43.1	31 00	1 36.7	57 00	0 37.8
50	7 33.5	50	4 31.2	40	$\begin{array}{c} 2 \ 41.6 \\ 2 \ 40.2 \end{array}$	20 40	1 35.5 $1 34.2$	58 00 59 00	0 36.4 0 35.0
55	7 28.6	55	$\frac{4\ 29.4}{4\ 27.5}$	$\frac{50}{20\ 00}$	$\frac{2\ 30.2}{2\ 38.8}$	$\frac{40}{32\ 00}$	$\frac{1}{1}\frac{34.2}{33.0}$	60 00	0 33.6
7 00 05	$\begin{array}{cccc} 7 & 23.8 \\ 7 & 19.2 \end{array}$	12 00 05	4 27. 3 4 25. 7	$\begin{array}{ccc} 20 & 00 \\ & 10 \end{array}$	$\begin{array}{c} 2 & 36.6 \\ 2 & 37.4 \end{array}$	20	1 31.8	61 00	0 33. 0
10	7 14.6	10	4 23. 9	20	2 36. 0	40	1 30.7	62 00	0 31.0
15	7 10.1	15	4 22. 2	30	2 34.6	33 00	1 29.5	63 00	0 29.7
20	7 5.7	20	4 20.4	40	2 33.3	20	1 28.4	64 00	0 28.4
25	7 1.4	25	4 18.7	50	2 32.0	40	1 27.3	65 00	0 27.2
7 30	6 57.1	12 30	4 17.0	21 00	2 30.7	34 00	1 26. 2	66 00	0 25.9
35	6 53.0	35	4 15.3	10	2 29.4	20	1 25.1	67 00	0 24.7
40 45	6 48.9	40	4 13.6	20 30	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	35 00	$\begin{array}{cccc} 1 & 24, 1 \\ 1 & 23, 1 \end{array}$	68 00 69 00	$\begin{array}{c} 0 \ 23.6 \\ 0 \ 22.4 \end{array}$
. 50	$\begin{array}{c} 6 & 44.9 \\ 6 & 41.0 \end{array}$	45 50	4 12.0 4 10.4	40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	70 00	0 21. 2
55	6 37.1	55	4 8.8	50	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	40	1 21.0	71 00	0 20.1
8 00	6 33.3	13 00	4 7.2	$\frac{-00}{22\ 00}$	$\frac{221.3}{223.3}$	36 00	1 20.1	72 00	0 18.9
05	6 29.6	05	4 5.6	10	2 22.1	20	1 19.1	73 00	0 17.8
10	6 25.9	10	4 4.1	20	2 20.9	40	1 18.2	74 00	0 16.7
15	6 22.3	15	4 2.6	30	2 19.8	37 00	1.17.2	75 00	0 15.6
20	6 18.8	20	4 1.0	40	2 18.7	20.	1 16.3	76 00	0 14.5
25	6 15.3	25	3 59.6	50	2 17.5	40	1 15.4	77 00	0 13.5
8 30	6 11.9	13 30	3 58.1	23 00	2 16.4	38, 00 20	1 14.5	78 00 79 00	$\begin{array}{c} 0 \ 12.4 \\ 0 \ 11.3 \end{array}$
35 40	$\begin{array}{cccc} 6 & 8.5 \\ 6 & 5.2 \end{array}$	35 40	3 56.6 3 55.2	$\frac{10}{20}$	2 15. 4 2 14. 3	-48	12.7	80 00	0 11.3
45	6 2.0	45	3 53. 7	30	2 13.3	39 00	1 11,9	81 00	0 9.2
50	5 58.8	50	3 52.3	40	$\frac{2}{2}$ $\frac{10.0}{12.2}$	20	1 11.0	82 00	0 8.2
55	5 55.7	55	3 50.9	50	2 11.2	40	1 10.2	83 00	0 7.2
9 00	5 52.6	14 00	3 49.5	24 00	2 10.2	40 00-	1 9.4	84 00	0 6.1
05	5 49.6	10	3 46.8	10	2 9.2	20	1 8.6	85 00	0 5.1
10	5 46.6	20	3 44.2	20	2 8.2	40	1 7.8	86 00	0 4.1
15	5 43.6	30	3 41.6	30	2 7.2	41 00	1 7.0	87 00	0 3.1
$\frac{20}{25}$	5 40.7 5 37.9	40	3 39.0	40 50	$ \begin{array}{cccc} 2 & 6.2 \\ 2 & 5.3 \end{array} $	20 40	$ \begin{array}{cccc} 1 & 6.2 \\ 1 & 5.4 \end{array} $	88 00 89 00	$\begin{array}{ccc} 0 & 2.0 \\ 0 & 1.0 \end{array}$
$\frac{25}{9\ 30}$	5 35.1	15 00	3 36.5	25 00	$\frac{2}{2} \frac{3.3}{4.4}$	42 00	$\frac{1}{1} \frac{3.4}{4.7}$	90 00	0 0.0
0 00	0 30.1	10.00	0 04.1	40 00	4 4.4	42 00	1 7. /	00 00	0.0

Correction of the Sun's Apparent Altitude for Refraction and Parallax.

[Barometer, 30 inches. Fahrenheit's Thermometer, 50°.]

App	parent itude.	Mean Re- fraction and Parallax ⊙.	Apparent Altitude.	Mean Re- fraction and Parallax ⊙.	Apparent Altitude.	Mean Re- fraction and Parallax ⊙.	Apparent Altitude,	Mean Re- fraction and Parallax ⊙.	Apparent Altitude.	Mean Re- fraction and Parallax ①.
	0 /.	, ,,	0 ,	, ,,	0 /	, "	0 /	, ,,	0 /	, ,,
	4		9 30	5 26	15 00	3 25	25 00	1 56	42 00	0 58
	0 00	36 20	35	5 23	10	3 24	10	1 55	20	0 57
	1 00	24 45	40	5 21	20	3 21	20	1 55	40	0 56
	2 00	18 17	45	5 18	30	3 19	30	1 54	43 00	0 55
	3 00	14 16	50	5 15	40	3 17	40	1 53	20	0 55
	4 00	11 35	55	5 13	50	3 15	50	1 52	40	0 54
	5 00	9 43	10 00	5 10	16 00	3 13	26 00	1 51	44 00	0 53
	05	9 35	05	5 8	10	3 10	10	1 50	20	0 53
	10	9 27	10	5 5	20 30	3 8	20 30	1 49	5 × 40	0 52
	$\begin{array}{c} 15 \\ 20 \end{array}$	$9 20 \\ 9 12$	$\begin{array}{c} 15 \\ 20 \end{array}$	5 3 5 0	40	3 6 3 4	40	$\begin{array}{c c} 1 & 48 \\ 1 & 48 \end{array}$	$\begin{array}{c} 45 \ 00 \\ 20 \end{array}$	$egin{array}{ccc} 0 & 52 \\ 0 & 52 \\ \end{array}$
	25	$\begin{array}{ccc} 9 & 12 \\ 9 & 5 \end{array}$	$\frac{20}{25}$	4 58	50	3 2	50	1 47	40	0 52
	5 30	8 58	10 30	4 56	17 00	3 0	27 00	1 46	46 00	0 50
	35	8 51	35	4 53	10	$\begin{bmatrix} 3 & 0 \\ 2 & 58 \end{bmatrix}$	10	1 45	20	0 50
	40	8 44	40	4 51	20	2 57	20	1 44	40	0 49
	45	8 38	45	4 49	30	$\frac{2}{2}\frac{55}{55}$	30	1 44	47 00	0 48
	50	8 31	50	4 47	. 40	2 53	40	1 43	20	0 48
	55	8 25	55	4 44	50	2 51	50	1 42	40	0 47
	6.00	8 19	11 00	4 42	18 00	2 50	28 00	1 41	48 00	0 47
	05	8 13	05	4 40	10	2 48	20	1 40	49 00	0 45
	10	8 7	10	4 •38	20	2 46	40	1 38	50 00	0 43
	15	8 2	15	4 36	30	2 44	29 00	1 37	51 00	0 41
	20	7 56	20	4 34	- 40	2 43	20	1 35	52 00	0 40
	25	7 50	25	4 32	50	2 41	40	1 34	53 00	0 39
	6 30	7 45	11 30	4.30	19 00	2 40	30 00	1 33	54 00	0 37
	35	7 40	. 35.	4 28	10	2 38	20	1 31	55 00	0 36
	40	7 35	40	4 26	20	2 37	40	1 30	56 00	0 34
-	45	7 29	45	4 24 4 22	30	2 35	31 00	1 29	57 00	0 33
1	50 55	7 25 7 20	50 55	4 22 4 20	40 50	$\begin{array}{c}2&34\\2&32\end{array}$	20 40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	58 00 59 00	$\begin{array}{cccc} 0 & 32 \\ 0 & 31 \end{array}$
	7 00	7 15	12 00	4 19		$\frac{2 \ 32}{2 \ 31}$				
	05	7 10	05	4 19 4 17	20 00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	32 00 20	$\begin{array}{cccc} 1 & 25 \\ 1 & 24 \end{array}$	60 00 61 00	0 30 0 28
	10	7 6	10	4 15	20	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	40	1 23	62 00	0 28
	15	7 1	15	4 13	30	$\frac{2}{2} \frac{20}{27}$	33 00	$\begin{array}{ccc} 1 & 20 \\ 1 & 22 \end{array}$	63 00	0 26
	20	6 57	20	4 11	40	$\frac{2}{2} \frac{25}{25}$	20	1 20	64 00	0 24
	25	6 52	25	4 10	50	$2\ 24$	40	1 19	65 00	0 23
	7 30	6 48	12 30	4 8	21 00	2 23	34 00	1 18	66 00	0 22
	35	6 44	35	4 6	10	$\frac{1}{2} \frac{1}{21}$	20	1 17	67 00	0 21
	40	6 40	40	4 5	20	2 20	40	1 16	68 00	$0 \ 21$
	45	6 36	45	4 3	30	2 19	35 00	1 15	69 00	0 19
	50	6 32	50	4 1	40	2 18	20	1 15	70 00	0 18
	55	6 28	55	4 0	50	2 17	40	1 14	71 00	0 17
	8 00	6 24	13 00	3 58	22 00	2 15	36 00	1 13	72 00	0 16
	05	6 21	05	3 57	10	2 14	20	1 12	73 00	0 16
	10	6 17	10	3 55	20	2 13	40	1 11	74 00	0 15
	$\begin{array}{c c} 15 \\ 20 \end{array}$	6 13 6 10	$\begin{vmatrix} 15 \\ 20 \end{vmatrix}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	-30	2 12	37 00	1 10	75 00	0 14
	25	6 6	$\begin{bmatrix} 20 \\ 25 \end{bmatrix}$	$\begin{array}{c} 3 \ 52 \\ 3 \ 51 \end{array}$	40 50	$\begin{array}{c}2&11\\2&10\end{array}$	$\frac{20}{40}$	$\begin{array}{ccc} 1 & 9 \\ 1 & 8 \end{array}$	76 00 77 00	$\begin{array}{c} 0 \ 13 \\ 0 \ 12 \end{array}$
4	8 30	$\frac{6}{6}$	13 30	3 49						
11	35	6 0	35	3 49	23 00 10	$\begin{bmatrix} 2 & 8 \\ 2 & 7 \end{bmatrix}$	38 00 20	$\begin{array}{ccc} & 1 & 8 \\ & 1 & 7 \end{array}$	78 00 79 00	0 10 0 9
11.	40		40	3 46	20	2 6	40	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	80 00	0 8
2	45	5 56	45	3 45	30	2 5	39 00	1 5	81 00	0 7
t e	50	5 50	50	3 43	40	2 4	20	$\hat{1}$ $\hat{4}$	82 00	0 6
	55	5 50 5 47	• 55	3 42	50	2 4 2 3	40	$\hat{1}$ $\hat{3}$	83 00	0 6
	9 00	5 44	, 14 00	3 41	24 00	2 2	40 00	1 2	84 00	0 5
	-05	5 41	10	3 38	10	2 1	20	$ar{1}$ $ar{2}$	85 00	0 4
	10	5 38	20	3 35	20	2 0	40	1 1	86 00	0 3
	15	5 35	30	3 33	30	1 59	41 00	1 0	87 00	0 2
	20	5 32	40	3 30	40	1 58	20	0 59	88 00	0 2
	25	5 29	. 50	3 28	50	1 57	40	0 58	89 00	0 1
	9 30	5 26	15 00	3 25	25 00	1 56	42 00	0 58	90 00	0 0

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TABLE 21.

Correction of the Mean Refraction for the Height of the Barometer.

										4.1	1	-,		0.7		,	1 .	0.4		1	101	
Subtract.	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"		5′ 30″	0"	30"	0"	30′′	0"	30"	0"	30′′	0"	Add.
	"		"	"	"	"	"		"	"	"	"	"	"	"		- ,,	-,,	"		-,,	
27.50	0	2	5	7	10	12	15	17	20	23	25	28	30	33	35	38	40	43	45	48	51	
27.55	0	$\frac{2}{2}$	5	7	10	12	15	17	20	22	25	27	30	32	35	37	40	42	45	47	50	
27.60	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	$\begin{vmatrix} 5 \\ 5 \end{vmatrix}$	7 7	$\begin{vmatrix} 10 \\ 9 \end{vmatrix}$	$\begin{array}{ c c }\hline 12\\12\\\end{array}$	14 14	$\begin{array}{c c} 17 \\ 16 \end{array}$	19 19	$\begin{vmatrix} 22\\21 \end{vmatrix}$	24 24	$\frac{27}{26}$	29 28	$\begin{vmatrix} 31 \\ 31 \end{vmatrix}$	34	36 36	39 38	41 40	44 43	46	49	
27.65 27.70	0	$\frac{2}{2}$	5	7	9	11	14	16	18	21	23	$\frac{20}{25}$	28	30	32	35	37	39	42	45	48 47	
27. 75	0	$\frac{1}{2}$	4	7	9	11	13	16	18	20	23	25	27	29	32	34	36	39	41	43	46	
27.80	0	2	4	7	9	11	13	15	18	20	22	24	27	29	31	33	35	38	40	42	45	
27. 85	0	$\begin{vmatrix} 2\\2 \end{vmatrix}$	4	6	9	11	13	15	17	19	22	24	26	28	30	32	35	37	39	41	44	
$27.90 \\ 27.95$	0	$\frac{2}{2}$	4	$\begin{vmatrix} 6 \\ 6 \end{vmatrix}$	8	$\begin{vmatrix} 10 \\ 10 \end{vmatrix}$	$\begin{vmatrix} 13 \\ 12 \end{vmatrix}$	$\begin{array}{ c c }\hline 15\\14\\ \end{array}$	$\begin{vmatrix} 17 \\ 16 \end{vmatrix}$	19	$\begin{vmatrix} 21 \\ 21 \end{vmatrix}$	23 23	25 25	$\begin{vmatrix} 27 \\ 27 \end{vmatrix}$	$\begin{vmatrix} 30 \\ 29 \end{vmatrix}$	32 31	34 33	36	38	39	43 42	
28.00	0	$\frac{-}{2}$	4	6	8	10	$\frac{12}{12}$	14	16	18	20	22	$\frac{20}{24}$	$\frac{27}{26}$	28	30	$\frac{32}{32}$	34	$\frac{36}{36}$	38	41	
28. 05	ŏ	2	4	6	8	10	12	14	16	18	20	$\overline{22}$	24	$\overline{25}$	$\overline{27}$	29	31	33	35	37	39	
28.10	0	2	4	6	8	9	11	13	15	17	19	21	23	25	27	29	31	33	34	36	38	
28.15 28.20	$\begin{array}{c} 0 \\ 0 \end{array}$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	4	$\begin{vmatrix} 6 \\ 5 \end{vmatrix}$	7	$\begin{vmatrix} 9 \\ 9 \end{vmatrix}$	11 11	13 13	$\begin{vmatrix} 15 \\ 14 \end{vmatrix}$	17 16	19 18	$\begin{vmatrix} 20 \\ 20 \end{vmatrix}$	$\begin{vmatrix} 22\\22 \end{vmatrix}$	24	26 25	$\begin{vmatrix} 28 \\ 27 \end{vmatrix}$	30	32	34	36	37	
28. 25	0	$\frac{2}{2}$	3	$\frac{3}{5}$	7	$\frac{3}{9}$	$\frac{11}{10}$	$\frac{13}{12}$	14	$\frac{10}{16}$	18	$\frac{20}{19}$	$\frac{22}{21}$	$\frac{24}{23}$	$\frac{25}{25}$	$\frac{27}{26}$	$\frac{29}{28}$	$\frac{31}{30}$	$\frac{33}{32}$	$\frac{35}{34}$	$\frac{36}{35}$	
28.30	ŏ	2	3	5	7	8	10	12	14	15	17	19	21	22	24	$\frac{26}{26}$	27	29	31	33	34	
28.35	0	2	3	5	7	8	10	12	13	15	17	18	20	22	23	25	27	28	30	32	33	
28.40	0	$\begin{vmatrix} 2\\2 \end{vmatrix}$	3	5	6	8	10	11	13	14	16	18	19	21	23	24	26	27	29	31	32	
$\frac{28.45}{28.50}$	$\frac{0}{0}$	$\frac{z}{1}$	$\frac{3}{3}$	$\frac{5}{4}$	$\frac{6}{6}$	$\left -\frac{8}{7} \right $	$\frac{9}{9}$	$\frac{11}{10}$	$\frac{12}{12}$	$\frac{14}{14}$	$\frac{16}{15}$	$\frac{17}{17}$	$\frac{19}{18}$	$\frac{20}{20}$	$\frac{22}{21}$	$\frac{23}{23}$	$\frac{25}{24}$	$\frac{27}{26}$	$\frac{28}{27}$	$\frac{30}{29}$	$\frac{31}{30}$	31.5
28.55	ő	1	3	4	6	7	9	10	12	13	15	16	17	19	$\begin{vmatrix} z_1 \\ 20 \end{vmatrix}$	22	23	25	26	$\begin{vmatrix} 29\\28 \end{vmatrix}$	29	31. 4
28.60	ŏ	î	3	4	6	7	8	10	11	13	14	15	17	18	20	21	23	24	25	27	28	31. 4
28.65	0	1	3	4	5	7	8	9	11	12	14	15	16	18	19	20	22	23	25	26	27	31.3
28. 70	0	1	3	4	5	$\frac{6}{2}$	8	9	10	$\frac{12}{12}$	13	14	16	17	18	20	21	22	24	25	26	31. 3
28.75 28.80	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	$\begin{array}{ c c }\hline 1\\1\end{array}$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	4 4	5	$\begin{array}{c c} 6 \\ 6 \end{array}$	7	9 8	$\begin{vmatrix} 10 \\ 10 \end{vmatrix}$	11 11	13 12	14	15	16 16	18	19	20	$\begin{vmatrix} 21\\21 \end{vmatrix}$	$\begin{vmatrix} 23 \\ 22 \end{vmatrix}$	24 23	$\frac{25}{24}$	31. 2
28.85	0	1	2	3	5	6	7	8	9	10	12	13	14 14	15	17 16	18 17	19 19	$\frac{21}{20}$	$\frac{22}{21}$	22	23	31.2 31.1
28.90	Ŏ	1	2	3	4	5	7	8	9	10	11	12	13	14	16	17	18	19	20	21	22	31. 1
28.95	0	_1_	2	3	4	_5_	6	_ 7	8	9	11	12	13	14	15	_16_	17	18	19	20	21	31.0
29.00	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	31.0
29.05 29.10	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	$\begin{array}{ c c }\hline 1\\ 1\end{array}$	$\frac{2}{2}$	3	4	$\begin{array}{ c c c c }\hline 5 \\ 4 \end{array}$	6 5	7 6	8 7	9 8	$\begin{vmatrix} 10 \\ 9 \end{vmatrix}$	$\begin{array}{c} 11 \\ 10 \end{array}$	11 11	$\frac{12}{12}$	13	14 14	15 15	16 15	17 16	18 17	19 18	30.9 30.9
29. 15	ŏ	î	$\frac{1}{2}$	3	3	4	5	6	7	8	9	9	10	11	12	13	14	15	15	16	17	30.8
29.20	0	_1	2	2	3	4	5	6	6	7	8	9	10	10	11	12	13	14	15	15	16	30.8
29. 25	0	1	1	2	3	4	4	5	6	7	8	8	9	10	11	11	12	13	14	14	15	30. 7
29. 30 29. 35	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	1 1	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	3	3	4	5 5	6 5	$\begin{vmatrix} 6 \\ 6 \end{vmatrix}$	$\begin{array}{ c c }\hline 7\\ 7\end{array}$	8 7	8	9	10	11 10	$\begin{vmatrix} 11\\10 \end{vmatrix}$	12	13	13	14	30.70
29.40	ő	1	1	$\frac{2}{2}$	2	3	4	4	5	5	6	7	7	8	8	9	10	10	12 11	$\begin{array}{c c} 13 \\ 12 \end{array}$	13 12	30.6
29.45	0	1	1	2	2	3	3	$\tilde{4}$	4	5	6	6	7	7	8	8	9	9	10	11	11	30.5
29.50	0	0	1	1	2	$\overline{2}$	3	3	4	5	5	6	6	7	7	8	8	9	9	10	10	30.5
29.55	0	0	1	1	2	2	3	3	4	4	5	5	5	6	6	7	7	8	8	9	9	30.4
29. 60 29. 65	$\begin{array}{c} 0 \\ 0 \end{array}$	0	$\frac{1}{1}$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	$\frac{2}{1}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{3}{2}$	3	$\begin{vmatrix} 4\\3 \end{vmatrix}$	4	4	5 4	5	6 5	6 5	6	7 6	6	8 7	8	30. 4
29.70	ő	ő	1	1	1	1	$\frac{2}{2}$	$\frac{2}{2}$	2	3	3	3	4	4	4	5	5	5	5	6	6	30. 3
29.75	0	0	0	1	1	1	$\frac{1}{1}$	$\overline{{2}}$	$\overline{2}$	2	3	3	3	3	4	4	4	4	5	5	5	30. 2
29.80	0	0	0	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	4	4	4	30. 20
29. 85 29. 90	0	0	0	0	1	1	1	1	1	1	2	2	2	2	2	2	$\frac{2}{2}$	$\frac{3}{2}$	3	3	3	30. 1
29.95	ő	0	0	0	0	0	$\begin{array}{c} 1 \\ 0 \end{array}$	$\frac{1}{0}$	0	$\begin{vmatrix} 1 \\ 0 \end{vmatrix}$	$\frac{1}{1}$	$\frac{1}{1}$	1 1	1	1	$\frac{2}{1}$	$\begin{array}{c c} 2 \\ 1 \end{array}$	1	$\begin{vmatrix} 2\\1 \end{vmatrix}$	$\begin{vmatrix} 2 \\ 1 \end{vmatrix}$	$\frac{2}{1}$	30. 10 30. 0 3
30.00	0	0	0	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{0}{0}$	0	$\frac{1}{0}$	$\frac{1}{0}$	0	$\frac{1}{0}$	0	0	0	$\frac{1}{0}$	0	$\frac{1}{0}$	0	30.0
-14	0"	30"	0"	30"	0"	30"	0′′	30"	0"	30"	0"	30"	0"	30"	011	30"	0"	30"	0"	30′′	0"	
ubtract.		0'		1′		2/		3'		1'	_	5'		6'		7'		8')′	10′	Add.
Barom.	<u> </u>									Iean :												Baron

TABLE 22.

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Correction of the Mean Refraction for the Height of the Thermometer.

The same										Mear	a ref	ractio	n.									
Ther.		D'		1′		2'		3′		4'		5′		6′		7′	8	3')'	10'	Ther.
Add.	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"	0'	30"	0"	30′′	0"	30"	0"	30"	0"	Add.
0	"	",	"	"	10	"	"	"	"	"	//	1/	"	"	"	"	70	"	"	"	"	0
-10 - 8	0	4	8	$\begin{array}{c c} 12 \\ \cdot 12 \end{array}$	$\begin{vmatrix} 16 \\ 15 \end{vmatrix}$	20 19	24 23	28 27	33 31	37 36	41 40	46	$\begin{vmatrix} 50 \\ 48 \end{vmatrix}$	55 53	$\begin{vmatrix} 60 \\ 58 \end{vmatrix}$	$\frac{65}{62}$	70 67	75 72	80 77	85 82	90 87	$-10 \\ -8$
— 6	0	4	7	11	15	19	22	26	30	34	38	42	47	51	55	60	64	69	74	79	84	- 6
$-\frac{4}{2}$	0	$\frac{4}{3}$	7	11 10	14 14	18 17	$\frac{22}{21}$	$\frac{25}{24}$	29 28	33 31	37 35	41 39	45 43	49 47	53 51	57 55	$\begin{array}{ c c } 62 \\ 59 \end{array}$	66	71 68	$\begin{vmatrix} 76 \\ 72 \end{vmatrix}$	80 77	$-4 \\ -2$
0	0	3	7	10	13	16	20	23	$\overline{27}$	30	34	37	41	45	49	53	57	61	65	69	74	0
$\begin{bmatrix} 2 \\ 4 \end{bmatrix}$	0	3	6	9	$\frac{12}{12}$	16 15	19 18	$\begin{array}{c} 22 \\ 21 \end{array}$	$\begin{array}{c} 25 \\ 24 \end{array}$	29 28	32 31	$\frac{36}{34}$	39 37	43 41	47	50 48	54 52	58 55	$\begin{vmatrix} 62 \\ 59 \end{vmatrix}$	66	70 67	$\frac{2}{4}$
6	ő	3	6	8	11	14	17	20	23	26	29	32	36	39	42	46	49	53	56	60	64	6
8	0	3	5	8	11	$\frac{14}{12}$	$\frac{16}{15}$	19	22	25	28	31	$\frac{34}{29}$	37	$\frac{40}{20}$	43	47	50	54	57	61	8
10 11	0	$\frac{3}{2}$	5 5	8 7	$\begin{vmatrix} 10 \\ 10 \end{vmatrix}$	13 13	15 15	18 18	$\frac{21}{20}$	$\begin{array}{c} 24 \\ 23 \end{array}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	29 28	$\frac{32}{31}$	35 34	$\frac{\overline{38}}{37}$	41 40	44	48 46	51 49	54 53	58 56	10 11
12	0	2	5	7	10	12	15	17	20	22	25	28	30	33	36	39	42	45	48	51	54	12
13 14	0	2 2 2 2	5	7	9	$\begin{array}{c} 12 \\ 11 \end{array}$	14 14	$\begin{array}{c} 17 \\ 16 \end{array}$	19 19	$\frac{22}{21}$	24 24	$\begin{array}{c} 27 \\ 26 \end{array}$	30 29	$\frac{32}{31}$	35 34	38 37	41 40	44 42	47 45	$\begin{bmatrix} 50 \\ 48 \end{bmatrix}$	53 51	13 14
15	0		4	7	9	11	13	16	18	20	23	25	28	30	33	36	38	41 .	44	47	50	15
16 17	0	$\frac{2}{2}$	4	$\frac{6}{6}$	9 8	11 10	13 13	15 15	18 17	20 19	22 21	$\begin{array}{c} 25 \\ 24 \end{array}$	$\begin{array}{c} 27 \\ 26 \end{array}$	29 29	$\frac{32}{31}$	35 33	37	40 39	43	45 44	48 47	$\frac{16}{17}$
18	0	2 2 2 2 2 2	4	6	8	10	12	14	16	19	21	23	25	28	30	32	35	37	40	43	45	18
$\frac{19}{20}$	$\frac{0}{0}$		$\frac{4}{4}$	$\frac{6}{6}$	8	$\frac{10}{9}$	$\frac{12}{11}$	$\frac{14}{13}$	$\frac{16}{15}$	$\frac{18}{17}$	$\frac{20}{19}$	$\frac{22}{22}$	$\frac{24}{24}$	$\frac{27}{26}$	$\frac{29}{28}$	$\frac{31}{30}$	$\frac{34}{33}$	$\frac{36}{35}$	$\frac{39}{37}$	$\frac{41}{40}$	$\frac{44}{42}$	$\frac{19}{20}$
21	0	2 2 2 2 2	4	5	7	9	11	13	15	17	19	21	23	25	27	29	31	34	36	38	41	21
22 23	0	2	3	5 5	7	9 8	11 10	$\frac{12}{12}$	14 14	16 15	18 17	$\frac{20}{19}$	$\frac{22}{21}$	$\begin{array}{c} 24 \\ 23 \end{array}$	26 25	$\begin{array}{c} 28 \\ 27 \end{array}$	30 29	$\frac{32}{31}$	35 33	37 36	39 38	$\frac{22}{23}$
24	ŏ		3	5	6	8	10	11 •	13	15	17	18	20	22	24	26	28	30	32	34	36	24
25 26	0	$\frac{2}{1}$	3	5 4	6	8 7	9	11 11	$\begin{array}{c} 13 \\ 12 \end{array}$	14 14	16 15	18 17	$\frac{19}{19}$	21 20	$\begin{array}{c} 23 \\ 22 \end{array}$	$\begin{array}{c} 25 \\ 24 \end{array}$	$\begin{array}{c} 27 \\ 26 \end{array}$	$\begin{array}{c} 29 \\ 28 \end{array}$	31 29	33 31	35 33	$\frac{25}{26}$
27	ŏ	1	3	4	6	-7	9	10	12	13	15	16	18	19	21	23	25	26	28	30	32	27
28 29	0	1	3	4	5	$\begin{array}{c c} 7 \\ 6 \end{array}$	8	10.	11 11	$\begin{array}{c} 12 \\ 12 \end{array}$	14 13	15 15	17 16	19 18	20 19	$\frac{22}{21}$	$\begin{array}{c} 23 \\ 22 \end{array}$	$\frac{25}{24}$	27 26	29 27	30 29	28 29
30	0	1	$\overline{2}$	4	$\frac{5}{5}$	$\frac{6}{6}$	7	$\frac{3}{9}$	$\frac{11}{10}$	11	$\frac{13}{13}$	$\frac{10}{14}$	$\frac{10}{15}$	17	$\frac{10}{18}$	$\frac{21}{20}$	$\frac{22}{21}$	23	$\overline{24}$	$\frac{21}{26}$	28	30
$\begin{array}{c} 31 \\ 32 \end{array}$	0	1 1	$\frac{2}{2}$	3	5 4	6	7	8 8	9	11 10	$\begin{array}{c c} 12 \\ 11 \end{array}$	13 13	15 14	$\frac{16}{15}$	17	19 18	$\frac{20}{19}$	$\frac{22}{20}$	$\frac{23}{22}$	25 23	$\frac{26}{25}$	31 32
33	0	1	2	3	4	5	6	7	8	10	11	12	13	14	16 15	17	18	19	21	22	23	33
34	0	1	2	3	4	5	$\frac{6}{3}$	7	8	9	10	11	12	13	14	16	17	18	19	21	22	34
35 36	0	1	2 2	3	3	5 4	6 5	6	7	8	9	10 10	11 11	$\begin{array}{c} 13 \\ 12 \end{array}$	14 13	15 14	16 15	17 16	18 17	19 18	20 19	35 36
37 38	0	1	$\frac{2}{1}$	3 2 2 2	3	4	5	6	6	7	8	9	10	11	12	13	14	15	16	17	18	37
39	0	1	1		3	3	4	5 5	6 5	7 6	7 7	8	9	10	11 10	$\frac{12}{11}$	13 11	$\begin{array}{c} 13 \\ 12 \end{array}$	14 13	15 14	16 15	38 39
40	0	1	1	$\frac{2}{2}$	2	3	4	4	5	6	6	7	$\overline{8}$	8	9	10	10	11	12	13	13	40
41 42	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	1	1	$\begin{array}{c c} 2 \\ 1 \end{array}$	$\frac{2}{2}$	$\begin{bmatrix} 3 \\ 2 \end{bmatrix}$	3	4 3	4	5 4	6 5	6 5	7 6	7 7	8 7	8	8	10 9	11 9	11 10	12 11	$\begin{array}{c} 41 \\ 42 \end{array}$
43	0	0	1	1	2	2 2	3	3	3	4	4	5	5	6	6	7	7	8	8	9	9	43
44 45	$\frac{0}{0}$	$\frac{0}{0}$	$\frac{1}{1}$	$\frac{1}{1}$	$\frac{1}{1}$	$\frac{2}{1}$	$\frac{2}{2}$	$\frac{3}{2}$	$\frac{3}{2}$	$\frac{3}{3}$	$\frac{4}{3}$	$\frac{4}{3}$	$-\frac{4}{4}$	$-\frac{5}{4}$	$\frac{5}{4}$	$\frac{6}{5}$	$\frac{6}{5}$	$\frac{7}{6}$	$\frac{7}{6}$	$-\frac{8}{6}$	$\frac{8}{7}$	$\frac{44}{45}$
46	0	0	0	1	1	1	1	2	2	2	$\frac{3}{2}$	2	3	3	4	4	4	4	5	5	5	46
47 48	0	0	0	$\begin{array}{c c} 1 \\ 0 \end{array}$	1 0	1	1	1	1 1	$\frac{1}{2}$	$\begin{bmatrix} 2 \\ 1 \end{bmatrix}$	$\frac{2}{1}$	2	$\frac{2}{2}$	$\frac{3}{2}$	$\frac{3}{2}$	3 2	$\frac{3}{2}$	$\frac{4}{2}$	$\begin{bmatrix} 4 \\ 2 \end{bmatrix}$	3	47 48
49	0	0	0	0	0	_0_	0	0	0	_1	1	_1	1	1	1	1	1	_1	_ 1	1	1	49
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
Add.	0′′	80"	0"	30"	0"	30′′	0"	30′′	0"	30"	0"	30"	0"	30′′	0"	30"	0"	30"	0"	30"	0''	Add.
Ther.	0	,		1′		2′	:	3'	4	1'		5'	(ß'		7′ •	8	,	9	,	10'	Ther.
										Mear												Tuer.

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TABLE 22.

Correction of the Mean Refraction for the Height of the Thermometer.

Ther.		0/	1	1/	1	0/		3′	1	Mea:		ractio	1	6'	1 .	7'	1	91	0	,	100	Ther.
Subt.	0"	30"	0"	1' 30"	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"	0"	8'	9	30"	0"	Subt.
		-	-		-		_		_		_		-	-		-	-			-		
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	0	ŏ	ŏ	ŏ	ő	ő	ő	ő	ő	ĭ	1	ĭ	1	1	1	1	1	i	1	1	1	51
$5\hat{2}$	0	Ō	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	$\bar{2}$	3	52
53	0	0	0	1	1	1	1	1	1	2	2	$\frac{2}{3}$	2	2	2	3	3	3	3	4	4	53
54	0	0	0	1	1	$\frac{1}{1}$	1	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	2	$\frac{3}{2}$	3	3	3	4	4	4	5	5	5	54
55 56	0	0	1	1 1	1	$\frac{1}{2}$	$\frac{2}{2}$	$\frac{2}{2}$	$\frac{2}{3}$	$\frac{3}{3}$	$\frac{3}{4}$	$\frac{3}{4}$	4	4 5	5	5 6	5 6	$\frac{5}{6}$	6	6 7	6 8	55 56
57	0	ő	1	î	2	$\tilde{2}$	2	3	3	4	4	5	5	6	6	6	7	8	8	8	9	57
58	0	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	9	9	10	10	58
59	0	1	1	$\frac{2}{2}$	2	_3_	_3	4	4	_5_	_5	6	_6	7	8	_8_	9	10	_10_	11	12	_ 59
60	0	1	1	$\frac{2}{2}$	$\frac{2}{3}$	3	3 4	4	5 5	5 6	6	7 7	7 8	$\frac{8}{9}$	9 9	9 10	10 11	$\begin{array}{c c} 11 \\ 12 \end{array}$	$\begin{array}{c} 11 \\ 12 \end{array}$	12 13	13	60 61
61 62	0	1	1	2	3	3	4	, 4 5	6	6	7	8	9	9	10	11	12	13	14	15	14 15	62
63	ŏ	î	Î	$\frac{2}{2}$	3	4	5	5	6	7	8	8	9	10	11	12	13	14	15	16	17	63
64	0	_ 1_	2	2	3	4	5	_6	7	7_	8	9	10	11	12	13_	14	15	16	17_	18	64
65	0	1	$\frac{1}{2}$	3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	65
66 67	0	1 1	$\frac{2}{2}$	3	4	5	6	$\frac{6}{7}$	8	$\frac{8}{9}$	9 10	10 11	$\begin{array}{c c} 11 \\ 12 \end{array}$	$\frac{12}{13}$	14 14	$\begin{array}{c} 15 \\ 16 \end{array}$	$\begin{array}{ c c } 16 \\ 17 \end{array}$	17 18	18 19	19 20	$\frac{20}{22}$	66 67
68	0	1	$\frac{2}{2}$	3	4	5	6	7	8	9	11	11	13	14	15	16	18	19	20	$\frac{20}{22}$	23	68
69	0	1	2	3	4	5	7	8	9	10	11	12	13	15	16	17	19	20	21	23	24	69
70	0	1	2	3	5	6	7	8	9	10	12	12	14	16	17	18	20	21	22	24	25	70
71	0	1	2	4	5	6	7	8	10	11	$\frac{12}{12}$	13	15	16	18	19	20	22	23	25	27	71
$\begin{array}{c} 72 \\ 73 \end{array}$	0	1	$\frac{2}{3}$	4	5	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	8	9	10 11	$\begin{array}{c} 11 \\ 12 \end{array}$	13 13	14 14	$\begin{vmatrix} 16 \\ 16 \end{vmatrix}$	17 18	$\begin{array}{c c} 18 \\ 19 \end{array}$	$\frac{20}{21}$	$\frac{21}{22}$	$\begin{array}{c c} 23 \\ 24 \end{array}$	25 26	$\begin{bmatrix} 26 \\ 27 \end{bmatrix}$	28 29	72 73
74	0	î	3	4	5	7	8	10	11	$\frac{12}{12}$	14	15	17	18	20	22	23	25	27	28	30	74
75	0	1	3	4	6	7	8	10	11	13	14	16	18	19	$\overline{21}$	22	24	26	28	29	31	75
76	0	1	3	4	6	7	9	10	12	13	15	16	18	20	22	23	25	27	29	31	32	76
77	0	1	3	5 5	6	8 8	9	11 11	$\frac{12}{13}$	14 14	$\begin{vmatrix} 16 \\ 16 \end{vmatrix}$	17 18	$\frac{19}{20}$	$\frac{21}{21}$	$\begin{bmatrix} 22 \\ 23 \end{bmatrix}$	24 25	26 27	$\begin{vmatrix} 28 \\ 29 \end{vmatrix}$	30 31	32 33	34 35	77 78
78 79	0	$\frac{2}{2}$	3	5	6	8	10	11	13	15	17	18	20	$\frac{21}{22}$	$\begin{vmatrix} 23 \\ 24 \end{vmatrix}$	26	28	30	32	34	36	79
80	0		3	5	7	8	10	$\overline{12}$	14	15	17	19	21	23	25	27	29	31	33	35	37	80
81	0	$\begin{array}{c} 2 \\ 2 \\ 2 \end{array}$	3	5	7	9	10	12	14	16	18	20	21	24	26	28	30	32	34	36	38	81
82	0	$\frac{2}{2}$	4	5	7	9	11	13	14	16	18	20	22	24	26	28	31	33	35	37	40	82
83 84	0	$\frac{2}{2}$	4	$\frac{5}{6}$	7 8	9	11 11	$\frac{13}{13}$	15 15	17 17	19 19	$\begin{array}{c} 21 \\ 21 \end{array}$	$\begin{bmatrix} 23 \\ 23 \end{bmatrix}$	25 26	27 28	29 30	$\begin{array}{c} 31 \\ 32 \end{array}$	34 35	36 37	38 39	41 42	83 84
85	0	$\frac{2}{2}$	4	$\frac{6}{6}$	$\frac{3}{8}$	10	$\frac{11}{12}$	$\frac{10}{14}$	$\frac{16}{16}$	18	$\frac{10}{20}$	22	$\frac{20}{24}$	$\frac{26}{26}$	$\frac{20}{29}$	31	$\frac{32}{33}$	36	38	40	43	85
86	0	. 2	4	6	8	10	12	14	16	18	20	23	25	27	29	32	34	37	39	42	44	86
87	0	$\frac{2}{2}$	4	6	8	10	12	14	17	19	21	23	25	28	30	32	35	38	40	43	45	87
88 89	0	$\frac{2}{2}$	4	$\frac{6}{6}$	8	10 11	13 13	15 15	17 17	$\frac{19}{20}$	$\begin{array}{c} 21 \\ 22 \end{array}$	$\begin{array}{c} 24 \\ 24 \end{array}$	26 27	28 29	$\begin{array}{c c} 31 \\ 32 \end{array}$	33 34	36 37	38 39	$\begin{array}{c} 41 \\ 42 \end{array}$	44 45	46 48	88 89
90	0	$\frac{2}{2}$	$\frac{1}{4}$	$\frac{0}{7}$	$\frac{3}{9}$	11	13	$\frac{10}{16}$	$\frac{17}{18}$	$\frac{20}{20}$	$\frac{22}{23}$	$\frac{24}{25}$	$\frac{27}{27}$	$\frac{29}{30}$	$\frac{32}{32}$	$\frac{34}{35}$	$\frac{37}{38}$	40	43	46	49	90
91	0		4	7	9	11	14	16	18	21	23	25	28	31	33	36	39	41	44	47	50	91
92	0	$\frac{2}{2}$	5	7	9	11	14	16	19	21	24	26	29	31	34	37	39	42	45	48	51	92
93	0		5	7	9 10	$\begin{array}{c} 12 \\ 12 \end{array}$	14 14	17 17	19 19	$\frac{22}{22}$	24	27	29	32 33	35	37 38	40	43	46	49 50	52 53	93
$\frac{94}{95}$	0	$-\frac{2}{2}$	$\frac{5}{5}$	$\frac{7}{7}$	$\frac{10}{10}$	$\frac{12}{12}$	15	$\frac{17}{17}$	$\frac{19}{20}$	$\frac{22}{22}$	$\frac{25}{25}$	$\frac{27}{28}$	$\frac{30}{30}$	33	$\frac{35}{36}$	$\frac{38}{39}$	$\frac{41}{42}$	44 45	$\frac{47}{48}$	$\frac{50}{51}$	$\frac{55}{54}$	$\frac{94}{95}$
96	0	2	5	7	10	$\frac{12}{12}$	15	18	$\frac{20}{20}$	23	$\frac{26}{26}$	28	31	34	37	40	43	46	49	$\frac{51}{52}$	55	96
97	0	3	5	8	10	13	15	18	21	23	26	29	32	35	38	41	44	47	50	53	56	97
98	0	3	5	8	10	13	16	18	21	24	27	29	32	35	38	41	44	48	51	54	58	98
99 100	$\frac{0}{0}$	$\frac{3}{3}$	$\frac{5}{5}$	$\frac{8}{8}$	$\frac{11}{11}$	$\frac{13}{13}$	$\frac{16}{16}$	$\frac{19}{19}$	$\frac{21}{22}$	$\frac{24}{25}$	$\frac{27}{28}$	$\frac{30}{31}$	$\frac{33}{34}$	$\frac{36}{37}$	$\frac{39}{40}$	$\frac{42}{43}$	$\frac{45}{46}$	49 50	$\frac{52}{53}$	$\frac{55}{56}$	59 60	$\frac{99}{100}$
	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"	0"	30"	0"		0"	30"	0"	30"	0"	_
Subt.		0'		1'		2'		3'		4'		5′		6'		7'	-	8'		0'	10'	Subt
Ther.		-									<u> </u>				1	•	1		•			Ther
										Mea	n ref	ractio	n.									

TABLE 23.

Correction of the Moon's Altitude for parallax and refraction corresponding to a mean value of the horizontal parallax, 57′ 30″.

Moon's alt.	Corr.	Moon's alt.	Corr.	Moon's alt.	Corr.	Moon's alt.	Corr.
0	,	0	,	0	,	0	,
10	51	31	48	51	35	71	18
11	52	32	47	52	35	72	17
12	52	33	47	53	34	73	17
13	52	34	46	54	33	74	16
14	52	35	46	55	32	75	15
15	52	36	45	56	32	76	14
16	52	37	45	57	31	77	13
17	52	38	44	58	30	78	12
18	52	39	44	59	29	79	11
19	52	40	43	60	28	80	10
20	51						
21	51	41	42	61	27	81	9
22	51	42	42	62	26	82	9 8 7
23	51	43	41	63	26	83	
24	50	44	40	64	25	84	6 5
25	50	45	40	65	24	85	
26	50	46	39	66	23	86	4
27	49	47	38	67	22	87	$\frac{4}{3}$ $\frac{2}{1}$
28	49	48	38	68	· 21	88	2
29	49	49	37	69	20	89	1
30	48	50	36	70	19	90	0

TABLE 24.

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

[Barometer, 30 inches.—Fahrenheit's Thermometer, 50°.]

Moon's		1	Iorizontal	parallax				ds of	Cor		n for a	econd -Add.	is of	Corr. for
app. alt.	54' 55'	56′	57′	58′	59'	60′	61′	Seconds of parallax.	0"	2"	4"	6"	8"	minutes of alt.
\$ 0 10 20 30 40 50 8 0 10 20 30 40 50 9 0 0 10 20 30 40 50 9 0 10 20 30 40 50 50 50 50 50 50 50 50 50 50 50 50 50	44 11 45 25 39 52 44 46 45 15 26 36 46 46 55 47 47 2 48 13 37 41 45 15 15 19 24 11 45 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	7	50 0 6 11 17 22 50 26 30 34 39	47 56 48 11 25 38 49 14 25 35 49 14 25 35 45 45 45 45 46 41 48 50 54 51 0 6 6 6 6 11 16 21 51 25 30 34 41 41 48 41 48 41 48 41 48 41 48 41 48 48 48 48 48 48 48 48 48 48 48 48 48	48 55 49 10 24 38 35 50 13 50 3 50 13 25 34 44 45 40 47 51 54 40 47 51 54 52 5 10 16 20 52 24 33 37 44 44 45 46 47 51 24 46 47 51 25 52 5 53 54 40 47 54 40 47 54 40 47 54 40 47 54 40 47 54 40 47 54 40 47 47 47 48 49 40 40 47 47 48 49 40 40 47 47 48 48 49 40 40 47 47 48 48 49 40 40 40 40 40 40 40 40 40 40	49 55 50 10 24 37 51 13 51 13 25 34 44 45 35 52 1 52 11 52 11 52 11 52 53 34 40 46 52 53 53 4 10 15 15 18 25 34 40 46 46 52 53 53 4 40 46 46 46 52 53 53 4 40 46 46 46 46 46 46 46 46 46 46 46 46 46	50 55 51 10 24 37 52 3 52 13 52 13 52 13 53 44 45 3 53 1 53 10 18 25 33 40 46 53 53 54 4 9 14 19 54 23 36 37 37 38 49 40 40 40 40 40 40 40 40 40 40	0 10 20 30 40 50 0 10 10 20 30 40 50 0 10 20 30 40 50 0 10 50	0 10 20 30 40 50 0 10 20 30 40 50 0 10 20 30 40 50 0 10 20 30 40 50 0 10 10 20 30 40 40 50 0 10 10 10 10 10 10 10 10 10 10 10 10	"2 12 22 32 42 52 12 22 22 32 42 52 12 12 12 22 32 42 52 12 12 12 12 12 12 12 12 15 15 1	" 4 14 24 34 44 54 44 54 44 54 44 54 44 54 44 55 44 55 65 66 66 66 66 66 66 66 66 66 66 66	" 6 16 26 36 46 56 6 16 26 36 46 55 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	8 18 28 38 48 58 8 18 28 38 48 58 8 18 28 38 48 58 8 18 58 8 18 58 8 58 8 58 8 58 8	Add. 1' 1" 2 1 3 2 4 2 5 3 6 4 7 4 8 5 9 5

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TABLE 24.

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

[Barometer 30 inches.—Fahrenheit's Thermometer 50°.]

Moon's app. alt.			E	Iorizonta	l paralla:	ς.			Seconds of parallax.	Cor			secon -Add	ds of	Corr. for minutes
арр. ан.	54'	55'	56'	57'	58'	59'	60'	61'	Seco	0"	2"	4"	6"	8"	of alt.
0 / 10 0 10 20 30 40 50	47 53 56 59 48 2 5	, " 48 52 55 58 49 1 4 6	7 " 49 51 54 57 50 0 2 5	50 50 53 56 59 51 2 4	51 50 52 55 58 52 1 4	52 48 51 55 57 53 0 2	53 48 50 54 56 59 54 1	, " 54 47 50 53 55 58 55 0	0 10 20 30 40 50	" 0 10 20 29 39 49	2 12 22 31 41 51	" 4 14 24 33 43 53	6 16 26 35 45 55	8 18 28 37 47 57	Add. 1' 0" 2 1 3 1 4 1 5 2 6 2
11 0 10 20 30 40 50 12 0	48 10 12 15 17 19 21 48 22	$ \begin{array}{r} \hline 49 & 9 \\ & 11 \\ 14 \\ \hline 16 \\ \hline 18 \\ \hline 20 \\ \hline 49 & 21 \\ \hline \end{array} $	50 8 10 12 14 17 18 50 19	51 7 9 12 13 15 17 51 18	52 7 9 11 13 15 17 52 17	53 5 7 9 11 13 15 53 17	54 4 6 8 10 12 14 54 15	55 3 5 7 9 11 13 55 14	$\begin{array}{c} 0 \\ 10 \\ 20 \\ 30 \\ 40 \\ \hline 0 \\ \end{array}$	$ \begin{array}{c} 0 \\ 10 \\ 20 \\ 29 \\ 39 \\ 49 \\ \hline 0 \end{array} $	$ \begin{array}{c c} 2\\12\\22\\31\\41\\51\\\hline 2 \end{array} $	4 14 24 33 43 53	$ \begin{array}{r} 6 \\ 16 \\ 26 \\ 35 \\ 45 \\ 55 \\ \hline 6 \end{array} $	8 18 28 37 47 57	7 2 8 2 9 3
10 20 30 40 50	24 24 26 27 28 29 48 30	23 25 26 27 28 49 29	21 23 24 25 26 50 27	20 22 23 24 25 51 26	$ \begin{array}{c cccc} & 17 & 19 & \\ & 21 & \\ & 22 & \\ & 23 & \\ & 24 & \\ \hline & 52 & 25 & \\ \end{array} $	18 20 20 21 22 53 23	$ \begin{array}{r} 16 \\ 18 \\ 19 \\ 20 \\ 21 \\ \hline 54 22 \end{array} $	15 17 18 19 20 55 20	10 20 30 40 50	10 20 29 39 49	$ \begin{array}{c c} 12 \\ 22 \\ 31 \\ 41 \\ 51 \\ \hline 2 \end{array} $	14 24 33 43 53	16 25 35 45 55	18 27 37 47 57	1 0
10 20 30 40 50	31 32 33 34 35 48 35	30 31 32 32 33 49 33	28 29 30 30 31 50 31	27 27 28 29 30 51 30	26 26 27 28 28 52 28	24 24 25 26 26 53 26	22 23 23 24 25 54 25	21 21 22 22 22 23 55 23	10 20 30 40 50	10 19 29 39 49	$ \begin{array}{c} 12 \\ 21 \\ 31 \\ 41 \\ 51 \\ \hline 2 \end{array} $	14 23 33 43 53 4	$ \begin{array}{r} 16 \\ 25 \\ 35 \\ 45 \\ \hline 6 \end{array} $	18 27 37 47 57	2 0 3 0 4 0 5 0 6 0 7 0
10 20 30 40 50	35 36 36 36 36	34 34 34 34 34	32 32 32 32 32	30 30 30 30 30	28 29 29 29 29	26 27 27 27 27 27	25 25 25 25 25 25	23 24 23 23 23	10 20 30 40 50	10 19 29 39 49	12 21 31 41 51	14 23 33 43 53	16 25 35 45 55	18 27 37 47 57	8 0 9 0
15 0 10 20 30 40 50	48 36 36 36 36 36 35	49 35 35 35 34 34 33	50 33 32 32 31 31 30	51 31 30 30 29 29 28	52 29 28 28 28 27 26	53 27 26 26 25 25 25 24	54 25 24 24 23 23 21	55 23 22 22 21 21 21 19	0 10 20 30 40 50	0 10 19 29 39 49	2 12 21 31 41 51	4 14 23 33 43 53	6 16 25 35 45 55	8 18 27 37 47 57	
16 0 10 20 30 40 50	48 35 34 34 33 33 32	49 32 32 32 31 31 30	50 29 29 29 28 28 27	51 27 27 27 26 25 24	52 25 25 25 24 23 22	53 23 23 22 21 21 21 20	54 20 20 20 19 18 17	55 18 18 17 16 16 15	0 10 20 30 40 50	0 10 19 29 38 48	2 12 21 31 40 50	4 13 23 33 42 52	6 15 25 35 44 54	8 17 27 36 46 56	Sub.
17 0 10 20 30 40 50	48 31 30 28 27 26 26	49 29 28 26 25 24 23	50 26 25 23 22 21 20	51 23 22 20 19 18 17	52 21 20 18 17 16 15	53 18 17 15 14 13 12	54 16 14 12 11 10 9	55 13 12 10 9 7 6	0 10 20 30 40 50	0 10 19 29 38 48	2 12 21 31 40 50	4 13 23 33 42 52	6 15 25 34 44 53	8 17 27 36 46 55	1' 0" 2 0 3 0 4 0 5 1 6 1
18 0 10 20 30 40 50	48 24 23 22 21 20 18	49 21 20 19 18 17 15	50 18 17 16 15 14 12	51 15 14 13 12 10 9	52 13 12 11 10 8 6	53 10 9 8 6 4 2	54 7 6 5 3 1 53 59	55 4 3 2 0 54 58 56	0 10 20 30 40 50	0 10 19 29 38 48	2 11 21 30 40 50	4 13 23 32 42 51	6 15 25 34 44 53	8 17 27 36 46 55	7 1 8 1 9 1
19 0 10 20 30 40 50	48 16 15 • 13 12 10 9	49 13 12 10 8 6 5	50 10 8 6 5 3 2	51 7 5 3 2 0 50 58	52 4 2 0 51 58 56 55	53 0 52 59 57 55 53 51	53 57 - 55 - 53 - 51 - 49 - 48	54 55 53 51 49 47 45	0 10 20 30 40 50	0 10 19 29 38 48	2 11 21 30 40 50	4 13 23 32 42 51	6 15 25 34 44 53	8 17 27 36 46 55	

Correction of the Moon's Apparent Altitude for Parallax and Refraction. [Barometer 30 inches,—Fahrenheit's Thermometer 50°.]

Moon's app. alt.			H	(orizonta)	l parallaz	۲.			Seconds of parallax.	Cor		o for llax	secon -Add.	ds of	Corr. for
app. art.	54'	55'	56'	57′	58′	59'	60′	61'	Seco	0"	2"	4"	6"	8"	of alt.
20 0 10 20 30 40 50	48 6 5 3 1 59 57	49 3 2 0 48 58 56 54	49 59 58 56 53 52 50	50 56 55 52 50 48 46	51 52 51 49 46 44 42	52 49 47 45 42 40 38	53 45 43 41 38 36 34	54 42 40 37 35 33 30	0 10 20 30 40 50	0 9 19 28 38 47	" 2 11 21 30 39 49	" 4 13 23 32 41 51	6 15 24 34 43 53	8 17 26 36 45 54	Sub. 1' 0" 2 0 3 1 4 1 5 1 6 1
$ \begin{array}{r} 21 & 0 \\ 10 \\ 20 \\ 30 \\ 40 \\ 50 \\ \hline 22 & 0 \end{array} $	47 55 53 51 48 46 43 47 42	48 51 49 47 44 42 39 48 37	49 47 45 43 40 38 35 49 33	50 43 41 39 36 33 31 50 29	51 39 37 35 32 29 27 51 25	52 35 33 31 28 25 22 52 20	53 31 29 27 24 21 18 53 16	54 28 26 23 20 17 14 54 11	$\begin{bmatrix} 0 \\ 10 \\ 20 \\ 30 \\ 40 \\ 50 \\ \hline 0 \end{bmatrix}$	$ \begin{array}{c} 0 \\ 9 \\ 19 \\ 28 \\ 37 \\ 47 \\ \hline 0 \end{array} $	$ \begin{array}{c c} 2\\ 11\\ 21\\ 30\\ 39\\ 49\\ \hline 2 \end{array} $	$ \begin{array}{r} 4 \\ 13 \\ 22 \\ 32 \\ 41 \\ 50 \\ \hline 4 \end{array} $	$ \begin{array}{r} 6 \\ 15 \\ 24 \\ 34 \\ 43 \\ 52 \\ \hline 6 \end{array} $	7 17 26 35 45 54 7	7 1 8 1 9 2
10 20 30 40 50	40 37 34 32 29 47 27	35 32 30 27 25 48 22	30 27 25 22 20 49 17	26 23 20 18 15 50 13	22 19 16 13 11 51 8	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	13 10 7 4 1 52 58	8 5 3 0 53 57 53 54	10 20 30 40 50	$ \begin{array}{c} 9 \\ 19 \\ 28 \\ 37 \\ 46 \\ \hline 0 \end{array} $	$ \begin{array}{c c} 11 \\ 20 \\ 30 \\ 39 \\ 48 \\ \hline 2 \end{array} $	13 22 31 41 50 4	15 24 33 43 52 6	17 26 35 45 54 7	
10 20 30 40 50	25 22 19 16 13 47 10	20 17 14 11 8 48 5	15 12 9 6 3 49 0	10 7 4 1 49 58 49 55	5 2 0 50 57 54 50 50	0 51 57 54 51 48 51 45	55 52 49 46 43 52 40	51 48 45 42 38 53 35	10 20 30 40 50	9 18 28 37 46 0	11 20 29 39 48 2	13 22 31 40 50	15 24 33 42 51	17 26 35 44 53	1 0
10 20 30 40 50	8 5 2 46 59 56	3 0 47 57 54 51	48 57 54 51 48 45	52 49 46 43 40	47 44 41 38 35	42 39 35 32 29	37 33 30 27 23	32 28 24 21 18	10 20 30 40 50	9 18 27 36 46	11 20 29 38 47	13 22 30 40 49	15 24 32 42 51	16 26 34 44 53	$egin{array}{cccccccccccccccccccccccccccccccccccc$
25 0 10 20 30 40 50	46 53 50 46 43 40 37	47 48 45 41 38 34 31	48 42 39 35 32 28 25	49 37 33 29 26 23 19	50 31 28 24 20 17 14	51 26 22 18 14 11 7	52 20 16 12 8 5	53 14 10 6 3 52 59 56	0 10 20 30 40 50	0 9 18 27 36 45	2 11 20 29 38 47	4 13 22 31 40 49	5 14 24 33 42 51	7 16 25 34 43 52	7 2 8 2 9 3
26 0 10 20 30 40 50	46 34 31 27 24 20 17	47 28 25 21 18 14 11	48 22 19 15 12 8 4	49 16 13 9 6 2 48 58	50 10 7 3 49 59 55 51	51 4 1 50 57 53 49 45	51 58 54 50 46 42 38	52 52 48 44 40 36 32	0 10 20 30 40 50	0 9 18 27 36 45	2 11 20 29 38 47	4 13 22 31 39 48	5 14 23 32 41 50	7 16 25 34 43 52	
27 0 10 20 30 40 50	46 14 11 7 3 45 59 56	47 7 4 1 46 57 53 49	48 1 47 58 54 50 46 42	48 54 51 47 43 39 35	49 48 44 40 36 32 28	50 41 37 33 29 25 21	51 35 31 27 23 19 15	52 28 24 20 16 12 8	0 10 20 30 40 50	0 9 18 27 36 44	2 11 20 28 37 46	12 21 30 39 48	5 14 23 32 41 50	7 16 25 34 43 52	1 0 2 1 3 1 4 1 5 2 6 2
28 0 10 20 30 40 50	45 53 49 45 41 37 34	46 46 42 38 34 30 26	47 38 34 30 26 23 19	48 31 27 23 19 15 11	49 24 20 16 12 8 4	50 17 13 9 5 1 49 57	51 11 6 2 50 57 54 49	52 4 51 59 55 50 46 42	0 10 20 30 40 50	0 9 18 26 35 44	2 11 19 28 37 46	4 12 21 30 39 48	5 14 23 32 41 49	7 16 25 33 42 51	7 3 8 3 9 3
29 0 10 20 30 40 50	45 30 26 22 18 14 11	46 22 18 14 10 6 3	47 15 11 7 2 46 58 55	48 7 3 47 59 55 51 47	49 0 48 56 52 47 43 39	49 53 49 44 39 35 31	50 45 40 36 31 27 23	51 38 34 29 24 20 15	0 10 20 30 40 50	0 9 17 26 35 44	2 10 19 28 37 45	4 12 21 30 38 47	5 14 23 31 40 49	7 16 24 33 42 51	

TABLE 24.

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

[Barometer 30 inches.—Fahrenheit's Thermometer 50° .]

Moon's app. alt.			H	lorizonta	l parallaz	τ.			Seconds of parallax.	Cor			secon -Add.	dsof	Corr. for minute
	54'	55'	56'	57'	58'	59′	60′	61'	Sec	0"	2"	4"	6"	8"	of alt.
30 0 10 20 30 40 50	45 6 2 44 58 54 50 45	45 57 54 50 46 42 38	46 50 46 42 37 33 29	47 42 38 34 29 25 21	48 34 30 26 21 17 12	49 26 22 18 13 8 4	50 18 13 9 4 0 49 55	51 10 6 1 50 56 52 47	0 10 20 30 40 50	0 9 17 26 35 43	2 10 19 28 36 45	3 12 21 29 38 47	5 14 23 31 40 49	7 16 24 33 42 50	Sub. 1' 0'- 2 1 3 1 4 2 5 2 6 3
$ \begin{array}{r} 31 & 0 \\ 10 \\ 20 \\ 30 \\ 40 \\ 50 \\ \hline 32 & 0 \end{array} $	$ \begin{array}{r} 44 & 41 \\ 37 \\ 33 \\ 28 \\ 24 \\ 20 \\ \hline 44 & 15 \end{array} $	$\begin{bmatrix} 45 & 33 \\ 29 \\ 24 \\ 20 \\ 16 \\ 11 \\ \hline 45 & 7 \end{bmatrix}$	$ \begin{vmatrix} 46 & 24 \\ 20 \\ 15 \\ 11 \\ 7 \\ \hline 45 & 58 \end{vmatrix} $	$ \begin{array}{r} 47 & 16 \\ 12 \\ 7 \\ 2 \\ 46 & 58 \\ \hline 53 \\ \hline 46 & 49 \end{array} $	$ \begin{array}{r} 48 & 7 \\ 2 \\ 47 & 58 \\ 54 \\ 49 \\ \phantom{00000000000000000000000000000000000$	48 59 54 49 45 40 35 48 31	$\begin{vmatrix} 49 & 50 \\ 45 \\ 40 \\ 36 \\ 31 \\ 26 \\ \hline 49 & 22 \\ \end{vmatrix}$	50 42 37 32 27 22 17 50 13	$\begin{bmatrix} 0 \\ 10 \\ 20 \\ 30 \\ 40 \\ 50 \\ \hline 0 \end{bmatrix}$	$ \begin{array}{c} 0 \\ 9 \\ 17 \\ 26 \\ 34 \\ 43 \\ 0 \end{array} $	$ \begin{array}{ c c } 2\\10\\19\\27\\36\\44\\\hline 2 \end{array} $	$ \begin{array}{c c} 3 \\ 12 \\ 21 \\ 29 \\ 38 \\ 46 \\ \hline 3 \end{array} $	5 14 22 31 39 48 5	$ \begin{array}{ c c c } $	7 3 8 4 9 4
10 20 30 40 50 33 0	$ \begin{array}{r} 11\\ 7\\ 3\\ 43\ 58\\ 54\\ \hline 43\ 48 \end{array} $	$\begin{bmatrix} 3 \\ 44 & 58 \\ 53 \\ 48 \\ 44 \\ \hline 44 & 39 \\ \end{bmatrix}$	53 48 44 39 34 45 29	44 39 34 29 24 46 19	35 30 25 20 15 47 10	26 21 16 11 6 48 0	17 11 6 1 48 56 48 50	8 2 49 57 52 47 49 41	10 20 30 40 50	8 17 25 34 42 0		12 20 29 37 46	14 22 30 39 47 5	15 24 32 41 49	1 0
10 20 30 40 50 34 0	$ \begin{array}{r} 44 \\ 40 \\ 35 \\ 30 \\ 25 \\ \hline 43 21 \end{array} $	$ \begin{array}{r} 34 \\ 30 \\ 25 \\ 20 \\ 15 \\ \hline 44 11 \end{array} $	$ \begin{array}{r} 25 \\ 20 \\ 15 \\ 10 \\ 5 \\ \hline 45 \\ 0 \end{array} $	$ \begin{array}{r} 15 \\ 10 \\ 5 \\ 0 \\ 45 \\ \hline 45 \\ \hline 50 \end{array} $	$ \begin{array}{r} 5 \\ 0 \\ 46 55 \\ 50 \\ 45 \\ \hline 46 40 \end{array} $	47 55 50 45 40 35 47 30	45 40 35 30 24 48 19	36 31 25 20 14 49 9	$ \begin{array}{c} 10 \\ 20 \\ 30 \\ 40 \\ \hline 0 \end{array} $	8 17 25 33 42 0	10 18 27 35 43	12 20 28 37 45	13 22 30 38 47 5	15 23 32 40 48	2 1 3 1 4 2 5 2 6 3 7 3
10 20 30 40 50 35 0	$ \begin{array}{c} 16 \\ 11 \\ 6 \\ 1 \\ 42 56 \\ \hline 42 52 \end{array} $	$ \begin{array}{r} 6 \\ 1 \\ 43 56 \\ 51 \\ 46 \\ \hline 43 41 \end{array} $	44 55 50 45 40 35 44 30	45 40 35 30 24 45 19	$ \begin{array}{r} 34 \\ 29 \\ 24 \\ 19 \\ 14 \\ \hline 46 9 \end{array} $	$ \begin{array}{r} 24 \\ 19 \\ 13 \\ 8 \\ 3 \\ \hline 46 58 \end{array} $	$ \begin{array}{r} 14 \\ 9 \\ 3 \\ 47 \\ 58 \\ 52 \\ \hline 47 \\ 47 \end{array} $	$ \begin{array}{r} 3 \\ 48 58 \\ 52 \\ 47 \\ 42 \\ \hline 48 36 \end{array} $	10 20 30 40 50	8 17 25 33 41	10 18 26 35 43	12 20 28 36 44 3	13 21 30 38 46 5	15 23 31 40 48 7	8 4 9 4
10 20 30 40 50 36 0	$\begin{array}{r} 47 \\ 42 \\ 37 \\ 32 \\ 27 \\ \hline 42 \ 22 \\ \end{array}$	$ \begin{array}{r} 36 \\ 31 \\ 26 \\ 21 \\ 16 \\ \hline 43 11 \end{array} $	25 20 15 10 4 43 59	$ \begin{array}{r} 14 \\ 9 \\ 3 \\ 44 58 \\ 53 \\ \hline 44 48 \end{array} $	$ \begin{array}{r} 3\\45 58\\52\\47\\42\\\hline 45 37 \end{array} $	$ \begin{array}{r} 52\\ 47\\ 41\\ 36\\ 30\\ \hline 46\ 25 \end{array} $	$ \begin{array}{r} 41 \\ 36 \\ 30 \\ 25 \\ 19 \\ \hline 47 14 \end{array} $	$ \begin{array}{r} 30 \\ 25 \\ 19 \\ 14 \\ 8 \\ \hline 48 \\ 2 \end{array} $	10 20 30 40 50	8 16 24 33 41	$ \begin{array}{c c} 10 \\ 18 \\ 26 \\ 34 \\ 42 \\ \hline 2 \end{array} $	11 20 28 36 44 3	13 21 29 38 46 5	15 23 31 39 47	
10 20 30 40 50 37	17 12 7 1 41 56 41 51	$ \begin{array}{r} 5 \\ 0 \\ 42 55 \\ 50 \\ 44 \\ \hline 42 39 \end{array} $	54 48 43 38 32 43 27	42 37 31 26 20 44 15	31 25 20 14 8 45 3	19 14 8 2 45 56 45 51		47 56 50 44 39 33 47 27	10 20 30 40 50	8 16 24 32 40	10 18 26 34 42	11 19 27 35 43	13 21 29 37 45	14 23 31 39 47	1 1 2 1 3 2 4 2 5 3
10 20 30 40 50 38 0	46 41 35 30 25	34 29 23 18 12	21 16 11 5 42 59	9 4 43 58 53 47	44 57 52 46 40 34	45 40 34 28 22	33 27 21 15 9	21 15 9 3 46 57	10 20 30 40 50	0 8 16 24 32 40	10 17 25 33 41	3 11 19 27 35 43	5 13 21 29 37 45	6 14 22 30 38 46	6 3 7 4 8 4 9 5
10 20 30 40 50	41 19 14 8 3 40 58 52	42 7 2 41 56 51 45 39	42 54 49 43 38 32 26	43 41 36 30 24 18 13	44 29 23 17 12 6 0	45 16 10 4 44 58 52 46	45 57 51 45 39 33	46 51 45 38 32 26 20	0 10 20 30 40 50	0 8 16 23 31 39	2 9 17 25 33 41	3 11 19 27 35 42	5 13 20 28 36 44	6 14 22 30 38 46	
39 0 10 20 30 40 50	40 47 42 36 30 25 19	41 33 28 23 17 11 5	42 20 15 9 3 41 57 51	43 7 1 42 55 49 43 37	43 54 48 42 36 30 23	44 40 34 28 22 16 9	21 15	$ \begin{array}{c} 46 & 13 \\ 7 \\ 1 \\ 45 & 54 \\ 48 \\ 42 \end{array} $	0 10 20 30 40 50	0 8 15 23 31 39	2 9 17 25 32 40	3 11 19 26 34 42	5 12 20 28 36 43	6 14 22 29 37 45	1 1 2 1 3 2 4 2 5 3

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

[Barometer 30 inches.—Fahrenheit's Thermometer 50° .]

Moon's			н	orizontal	parallax				nds of llax.	Corr		n for s lax.—		ls of	Corr.
app. alt.	54'	55′	56′	57′	58′	59′	60′	61′	Seconds of parallax.	0"	2"	4"	6"	8"	minute of alt.
0 / 40 0 10 20 30 40 50	, " 40 14 8 2 39 56 50 45	41 0 40 54 48 42 36 30	41 46 39 33 28 22 16	42 32 25 19 13 7	43 18 11 5 42 59 53 47	44 4 43 57 50 44 38 32	44 50 43 36 30 24 18	45 36 29 22 16 9	" 0 10 20 30 40 50	0 8 15 23 30 38	2 9 17 24 32 40	3 11 18 26 34 41	5 12 20 27 35 43	6 14 21 29 37 44	Sub. 6' 3" 7 4 8 5 9 5
41 0 10 20 30 40 50 42 0	39 39 33 27 21 16 10 39 4	40 24 18 12 6 0 39 54 39 48	41 10 4 40 58 51 45 39 40 33	41 55 49 43 36 30 24 41 17	$ \begin{array}{r} 42 \ 41 \\ 34 \\ 28 \\ 22 \\ 16 \\ 9 \\ \hline 42 \ 2 \end{array} $	43 26 19 13 7 0 42 53 42 47	44 11 4 43 58 51 45 38 43 31	44 56 49 43 37 30 23 44 16	0 10 20 30 40 50	0 8 15 23 30 38 0	$ \begin{array}{c c} 2\\ 9\\ 17\\ 24\\ 32\\ 39\\ \hline 1 \end{array} $	3 11 18 26 33 41	$ \begin{array}{r} 5\\12\\20\\27\\35\\42\\\hline 4 \end{array} $	6 14 21 29 36 44 6	
10 20 30 40 50	38 58 52 46 40 34 38 28	$ \begin{array}{r} 42 \\ 36 \\ 30 \\ 24 \\ \hline 18 \\ \hline 39 12 \end{array} $	27 21 14 8 2 39 56	$ \begin{array}{c cccc} & 11 & 5 \\ & 5 & 58 \\ & 52 & 46 \\ \hline & 40 & 40 \\ \hline \end{array} $	$ \begin{array}{r} 41 & 56 \\ 50 \\ 43 \\ 36 \\ \hline 41 & 24 \end{array} $	$ \begin{array}{r} 41 \\ 34 \\ 27 \\ 21 \\ 14 \\ \hline 42 \\ 8 \end{array} $	25 18 11 5 42 58 42 52	$ \begin{array}{c cccc} & 10 \\ & 3 \\ & 43 & 56 \\ & 49 \\ & 42 \\ \hline & 43 & 36 \end{array} $	10 20 30 40 50	7 $ 15 $ $ 22 $ $ 30 $ $ 37 $ $ 0$	9 16 24 31 38	10 18 25 33 40	$ \begin{array}{c c} & 12 \\ & 19 \\ & 27 \\ & 34 \\ & 41 \\ \hline & 4 \end{array} $	13 21 28 36 43 6	1 1 2 1 3 2 4 2 5 3 6 4
10 20 30 40 50	22 16 10 4 37 57	38 59 53 47 41	50 43 37 30 24	34 27 20 14 7	18 11 5 40 58 51	1 41 54 48 41 34	45 38 31 24 17	29 22 15 8 1	10 20 30 40 50	7 15 22 29 37	9 16 23 31 38	10 18 25 32 39	12 19 26 34 41	13 20 28 35 42	7 4 8 5 9 5
44 0 10 20 30 40 50	37 51 45 38 32 26 20	38 35 28 21 15 9 2	39 18 11 4 38 58 51 44	40 1 39 54 47 41 34 27	40 44 37 30 24 17 10	41 27 20 13 7 0 40 53	42 10 3 41 56 49 42 35	42 54 46 39 32 25 18	0 10 20 30 40 50	$ \begin{array}{c} 0 \\ 7 \\ 14 \\ 21 \\ 29 \\ 36 \end{array} $	1 9 16 23 30 37	3 10 17 24 31 39	4 11 19 26 33 40	6 13 20 27 34 41	
45 0 10 20 30 40 50	37 14 7 0 36 54 48 41	37 56 49 43 37 30 23	38 38 31 25 18 11 4	39 21 14 7 1 38 54 47	40 3 39 56 49 43 36 29	40 46 39 32 25 18 11	41 28 21 14 7 0 40 52	$\begin{bmatrix} 42 & 11 \\ & 3 \\ 41 & 56 \\ & 49 \\ & 42 \\ & 34 \\ \end{bmatrix}$	0 10 20 30 40 50	0 7 14 21 28 35	1 8 15 23 30 37	3 10 17 24 31 38	11 18 25 32 39	6 13 20 27 34 41	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
46 0 10 20 30 40 50	36 35 29 22 16 9	37 17 10 3 36 57 50 43	37 58 51 44 38 32 25	38 40 33 26 20 13 6	39 22 15 8 1 38 54 47	40 4 39 57 49 42 35 28	40 45 38 31 24 17 9	41 27 20 12 5 40 58 50	0 10 20 30 40 50	0 7 14 21 28 35	1 8 15 22 29 36	3 10 17 23 30 37	11 18 25 32 39	6 12 19 26 33 40	7 5 8 5 9 6
47 0 10 20 30 40 50	35 56 49 42 36 30 23	36 37 30 23 17 10 3	37 18 11 4 36 57 50 43	37 59 52 45 38 31 24	38 40 34 26 19 12 5	39 21 14 6 38 59 52 45	40 2 39 55 47 40 32 25	40 43 36 28 21 13 5	0 10 20 30 40 50	0 7 14 20 27 34	1 8 15 22 29 35	3 10 16 23 30 37	4 11 18 24 31 38	5 12 19 26 33 39	
48 0 10 20 30 40 50	35 16 10 3 34 56 49 42	35 56 50 43 36 29 22	36 36 30 23 16 9	37 17 10 2 36 55 48 41	37 57 50 43 35 28 21	38 37 30 22 15 8 0	39 17 10 2 38 55 48 40	39 58 50 42 34 27 19	0 10 20 30 40 50	0 7 13 20 27 33	1 8 15 21 28 35	3 9 16 23 29 36	4 11 17 24 31 37	5 12 19 25 32 39	1 1 2 1 3 2 4 3 5 3 6 4
49 0 10 20 30 40 50	34 35 29 22 15 8 1	35 15 8 1 34 54 47 40	35 54 47 40 33 26 19	36 34 27 20 12 5 35 58	37 13 6 36 59 51 44 36	37 53 46 38 30 23 15	38 32 25 17 9 2 37 54	39 11 4 38 56 48 41 33	30 40	0 7 13 20 26 33	1 8 14 21 27 34	3 9 16 22 29 35	4 10 17 23 30 36	5 12 18 25 31 38	7 5 8 5 9 6

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TABLE 24.

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

 $[Barometer\ 30\ inches. — Fahrenheit's\ Thermometer\ 50°.]$

Moon's			I	Iorizonta	l paralla:	κ,			Seconds of parallax.	Cor			secon -Add.	ds of	Corr. for
app. alt.	54'	55'	56'	57'	58'	59'	60′	61'	Secon	0"	2"	4"	6"	8"	minutes of alt.
50 0 10 20 30 40 50	33 54 47 40 33 26 19	34 33 26 19 11 4 33 57	35 11 4 34 57 49 42 35	35 50 43 36 28 20 13	36 29 21 14 6 35 58 51	37 8 0 36 53 45 37 29	37 46 38 31 23 15 7	38 25 17 9 1 37 53 45	0 10 20 30 40 50	0 6 13 19 26 32	1 8 14 20 27 33	3 9 15 22 28 35	4 10 17 23 29 36	5 12 18 24 31 37	Sub.
51 0 10 20 30 40 50	33 12 5 32 58 51 44 37	33 50 43 36 29 22 14	34 28 21 13 6 33 59 51	35 6 34 58 50 43 36 28	35 44 36 28 21 14 6	36 22 14 6 35 58 50 42	36 59 51 43 36 28 20	37 37 29 21 13 5 36 57	0 10 20 30 40 50	0 6 13 19 25 31	$ \begin{array}{c c} 1 \\ 8 \\ 14 \\ 20 \\ 26 \\ 33 \\ \hline \end{array} $	3 9 15 21 28 34	4 10 16 23 29 35	5 11 18 24 30 36	1' 1" 2 1 3 2 4 3 5 4 6 4
52 0 10 20 30 40 50	32 30 23 15 8 1 31 54	$ \begin{array}{r} 33 & 7 \\ 0 & 32 & 52 \\ 45 & 38 \\ 31 & \hline 32 & 23 & \hline \end{array} $	33 44 36 29 21 14 7	34 21 13 6 33 58 50 43	34 58 50 43 35 27 19	35 35 27 19 11 3 34 55	36 12 4 35 56 48 40 32	36 49 41 33 24 16 8	0 10 20 30 40 50	$\begin{bmatrix} 0 \\ 6 \\ 12 \\ 18 \\ 24 \\ 31 \\ \hline \end{bmatrix}$	$ \begin{array}{c c} 1 \\ 7 \\ 13 \\ 20 \\ 26 \\ 32 \\ \hline \end{array} $	2 9 15 21 27 33	10 16 22 28 34	5 11 17 23 29 35	7 5 8 6 9 6
53 0 10 20 30 40 50	31 47 39 32 25 17 10	15 8 0 31 53 46	32 59 51 44 36 28 21	33 35 27 20 12 4 32 57	34 11 3 35 56 48 40 32	34 47 39 31 23 15 7	35 24 15 7 34 59 51 43	36 0 35 51 43 35 27 19	0 10 20 30 40 50	0 6 12 18 24 30	1 7 13 19 25 31	2 8 14 20 26 32	4 10 16 22 28 34	5 11 17 23 29 35	
54 0 10 20 30 40 50	31 3 30 55 48 40 33 26	31 38 30 22 15 8 0	32 13 5 31 57 49 42 35	32 49 41 33 25 17 9	33 24 16 8 0 32 52 44	33 59 51 43 35 27 19	34 35 26 18 10 1 33 53	35 10 1 34 53 45 37 28	0 10 20 30 40 50	0 6 12 18 23 29	1 7 13 19 25 30	2 8 14 20 26 32	4 9 15 21 27 33	5 11 16 22 28 34	
55 0 10 20 30 40 50	30 18 10 3 29 55 48 40	30 52 45 38 30 22 14	31 27 19 12 4 30 56 48	32 1 31 53 46 38 30 22	32 36 28 20 12 4 31 55	33 10 2 32 54 46 37 29	33 45 36 28 20 11 3	34 19 11 3 33 54 45 37	0 10 20 30 40 50	0 6 11 17 23 28	1 7 13 18 24 30	2 8 14 19 25 31	3 9 15 20 26 32	5 10 16 22 27 33	·
56 0 10 20 30 40 50	29 33 25 18 10 3 28 55	30 7 29 59 51 43 36 28	30 40 32 24 16 9	31 14 6 30 58 50 42 34	31 47 39 31 23 15 7	32 21 13 4 31 56 48 40	32 55 46 37 29 21 12	33 28 20 11 2 32 54 45	0 10 20 30 40 50	0 6 11 17 22 28	1 7 12 18 23 29	2 8 13 19 24 30	3 9 14 20 25 31	10 16 21 27 32	$\begin{array}{ccc}1&1\\2&2\\3&2\end{array}$
57 0 10 20 30 40 50	28 47 39 32 24 17 9	29 20 12 5 28 57 49 41	29 53 45 37 29 21 13	30 25 17 9 1 29 53 45	30 58 50 42 33 25 17	31 31 22 14 6 30 57 49	$ \begin{array}{r} 32 & 3 \\ 31 & 55 \\ 47 & 38 \\ 29 & 21 \end{array} $	32 36 27 19 10 1 31 52	0 10 20 30 40 50	$\begin{array}{c} 0 \\ 5 \\ 11 \\ 16 \\ 22 \\ 27 \end{array}$	1 6 12 17 23 28	2 7 13 18 24 29	3 9 14 19 25 30	10 15 21 26 31	4 3 5 4 6 5 7 5 8 6 9 7
58 0 10 20 30 40 50	28 1 27 53 45 38 30 22	28 33 25 17 9 1 27 53	29 5 28 57 49 41 33 24	29 37 28 20 12 4 28 55	30 9 0 29 52 44 35 27	30 41 32 23 15 6 29 58	31 12 4 30 55 46 38 29	31 44 35 26 17 9 0	0 10 20 30 40 50	0 5 10 16 21 26	$\begin{array}{c} 1 \\ 6 \\ 12 \\ 17 \\ 22 \\ 27 \end{array}$	2 7 13 18 23 28	3 8 14 19 24 29	4 9 15 20 25 30	
59 0 10 20 30 40 50	27 14 6 26 58 51 43 35	27 45 37 29 21 13 5	28 16 7 27 59 51 43 35	28 47 38 30 22 14 5	29 18 9 1 28 53 44 36	29 49 40 31 23 14 6	30 20 11 2 29 54 45 36	30 51 42 33 24 15 6	0 10 20 30 40 50	0 5 10 15 20 25	1 6 11 16 21 26	2 7 12 17 22 27	3 8 13 18 23 29	4 9 14 19 24 30	

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

[Barometer 30 inches.—Fahrenheit's Thermometer 50°.]

Moon's			F	Iorizonta	l paralla:	τ.			ids of llax.	Corı		n for a	econd -Add.	s of	Corr.
app. alt.	54'	55′	56′	57′	58'	59'	60′	61′	Seconds of parallax.	0"	2"	4"	6"	8"	minutes of alt.
60 0 10 20 30 40 50	26 26 19 11 3 25 55 47	26 57 49 41 32 24 16	7 " 27 27 19 11 2 26 53 45	7 7 27 57 49 40 31 23 14	28 27 19 10 1 27 53 44	28 57 49 40 31 22 13	29 27 18 9 0 28 51 42	29 57 48 39 30 21 12	0 10 20 30 40 50	0 5 10 15 20 25	" 1 6 11 16 21 26	" 2 7 12 17 22 27	3 8 13 18 23 28	" 4 9 14 19 24 29	ı
61 0 10 20 30 40 50	25 39 31 23 15 7 24 59	26 8 0 25 52 43 35 27	26 37 29 20 12 4 25 55	27 6 26 58 49 40 32 24	27 36 27 18 10 1 26 52	28 5 27 56 47 38 29 20	28 34 25 16 7 27 58 49	29 3 28 54 45 35 26 17	0 10 20 30 40 50	0 5 10 14 19 24	1 6 11 15 20 25	2 7 12 16 21 26	3 8 12 17 22 27	4 9 13 18 23 28	
62 0 10 20 30 40 50	24 50 42 34 26 18 10	25 19 10 2 24 54 46 37	25 47 38 29 21 13 4	26 15 6 25 57 49 41 32	26 43 34 25 17 8 25 59	27 11 2 26 53 45 36 27	27 40 30 21 12 3 26 54	28 8 27 58 49 40 31 21	0 10 20 30 40 50	0 5 9 14 19 23	1 6 10 15 19 24	2 6 11 16 20 25	3 7 12 17 21 26	4 8 12 18 22 27	
63 0 10 20 30 40 50	24 2 23 54 46 37 29 20	24 29 21 13 4 23 55 47	24 56 48 39 31 22 13	25 23 15 6 24 58 49 40	25 51 42 33 24 15 6	26 18 9 0 25 51 42 33	26 45 36 27 18 8 25 59	27 12 3 26 54 45 35 26	0 10 20 30 40 50	$ \begin{array}{c} 0 \\ 4 \\ 9 \\ 13 \\ 18 \\ 22 \end{array} $	1 5 10 14 19 23	$\begin{bmatrix} 2 \\ 6 \\ 11 \\ 15 \\ 20 \\ 24 \\ \hline \end{bmatrix}$	3 7 12 16 21 25	4 8 13 17 22 26	
64 0 · 10 20 30 40 50	23 12 4 22 56 47 39 31	23 39 31 22 13 5 22 57	24 5 23 57 48 39 30 22	24 32 23 14 5 23 56 48	24 58 49 40 31 22 13	25 24 15 6 24 57 48 39	25 50 41 32 22 13 4	26 17 8 25 58 48 39 30	0 10 20 30 40 50	$\begin{array}{c} 0 \\ 4 \\ 9 \\ 13 \\ 17 \\ 22 \end{array}$	1 5 10 14 18 23	2 6 10 15 19 23	3 7 11 16 20 24	3 8 12 16 21 25	
65 0 10 20 30 40 50	22 23 14 6 21 58 49 41	22 48 40 31 23 14 6	23 13 5 22 56 48 39 30	$\begin{bmatrix} 23 & 39 \\ & 30 \\ & 21 \\ & 13 \\ & 4 \\ 22 & 55 \end{bmatrix}$	24 4 23 55 46 37 28 19	24 30 20 11 2 23 53 44	24 55 46 36 27 18 8	25 21 11 1 24 52 43 33	0 10 20 30 40 50	$\begin{bmatrix} 0 \\ 4 \\ 8 \\ 13 \\ 17 \\ 21 \end{bmatrix}$	$ \begin{array}{c c} 1 \\ 5 \\ 9 \\ 13 \\ 18 \\ 22 \end{array} $	$\begin{bmatrix} 2 \\ 6 \\ 10 \\ 14 \\ 18 \\ 23 \end{bmatrix}$	2 7 11 15 19 23	3 7 12 16 20 24	Sub. 1' 1' 2 2 3 3 4 4 5 5
66 0 10 20 30 40 50	21 32 24 15 7 20 59 50	21 57 48 39 31 22 14	22 21 12 3 21 55 46 37	22 46 37 28 19 10	23 10 1 22 52 43 34 25	23 35 25 15 6 22 57 48	23 59 49 40 31 21 12	24 23 14 4 23 55 45 36	0 10 20 30 40 50	$egin{array}{c} 0 \\ 4 \\ 8 \\ 12 \\ 16 \\ 20 \\ \end{array}$	1 5 9 13 17 21	2 6 10 14 18 22	2 7 11 15 19 23	3 7 11 16 20 24	6 5 7 6 8 7 9 8
67 0 10 20 30 40 50	20 41 33 25 16 8 19 59	$\begin{bmatrix} 21 & 5 \\ 20 & 56 \\ 48 \\ 39 \\ 30 \\ 21 \end{bmatrix}$	21 28 19 11 2 20 53 44	21 52 43 34 25 16	22 15 6 21 57 48 39 30	22 39 29 20 11 2 21 52	23 2 22 52 43 34 24 15	23 26 16 7 22 57 47 37	0 10 20 30 40 50	0 4 8 12 15 19	1 5 8 12 16 20	2 5 9 13 17 21	2 6 10 14 18 22	3 7 11 15 18 22	
68 0 10 20 30 40 50	19 50 42 33 25 16 7	20 13 4 19 56 47 38 29	20 35 27 18 9 0 19 51	20 58 49 40 31 22 13	21 21 12 2 20 53 44 34	21 43 34 24 15 5 20 56	22 5 21 56 47 37 27 17	22 28 19 9 21 59 49 39	0 10 20 30 40 50	0 4 7 11 15 18	1 4 8 12 16 19	1 5 9 13 16 20	2 6 9 13 17 21	3 7 10 14 18 21	
69 0 10 20 30 40 50	18 59 50 42 33 24 16	19 21 12 3 18 54 45 37	19 42 33 24 15 6 18 57	20 4 19 55 45 36 27 18	20 25 16 7 19 57 48 39	20 47 37 28 18 9 0	21 8 20 59 49 39 29 20	21 30 20 10 0 20 50 41	0 10 20 30 40 50	0 4 7 11 14 18	1 4 8 11 15 18	1 5 8 12 15 19	2 6 9 13 16 20	3 6 10 13 17 20	

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TABLE 24.

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

 $[Barometer\,30\ inches.—Fahrenheit's\ Thermometer\,50°.]$

Moon's app. alt.			F	Iorizonta	l parallax	ζ.			Seconds of parallax.	Cor	rectio para	n for llax	secon -Add.	ds of	Corr. for minutes
арр. ан.	54'	55'	56'	57'	58'	59'	60′	61'	Sec	0"	2"	4"	6"	8"	of alt.
70 0 10 20 30 40 50	, " 18 7 17 58 50 41 32 24	18 28 19 10 1 17 53 44	18 48 39 30 21 12 3	19 9 0 18 50 41 32 23	19 30 20 11 1 18 52 43	19 50 41 31 21 12 3	7 " 20 11 1 19 51 41 32 22	20 31 21 11 19 52 42	" 0 10 20 30 40 50	" 0 3 7 10 13 17	" 1 4 7 11 14 17	" 1 5 8 11 15 18	" 2 5 9 12 15 19	3 6 9 13 16 19	
71 0 10 20 30 40 50 72 0 10	17 15 6 16 57 48 40 31 16 22 13.	17 35 26 17 8 16 59 50 16 41 32	17 54 45 36 27 18 9 17 0 16 50	18 14 5 17 55 46 37 28 17 18 9	18 34 24 14 5 17 56 47 17 37 27	18 53 43 33 24 15 5 17 55 46	19 12 3 18 53 43 34 24 18 14 4	19 32 22 12 2 18 52 42 18 32 22	0 10 20 30 40 50 0	0 3 6 10 13 16 0 3	1 4 7 10 13 17 1 4	1 4 8 11 14 17 1 4	2 5 8 12 15 18 2 5	3 6 9 12 15 19 2 5	
20 30 40 50 73 0	15 57 48 39 15 30	$ \begin{array}{r} 23 \\ 14 \\ 5 \\ 15 56 \\ \hline 15 47 \end{array} $	$ \begin{array}{r} 41 \\ 32 \\ 23 \\ 14 \\ \hline 16 \\ 5 \end{array} $	$ \begin{array}{r} 16 & 59 \\ 50 \\ 41 \\ 32 \\ \hline 16 & 22 \end{array} $	$ \begin{array}{r} 18 \\ 9 \\ 16 59 \\ 50 \\ \hline 16 40 \end{array} $	$ \begin{array}{r} 36 \\ 27 \\ 17 \\ 7 \\ \hline 16 58 \end{array} $	17 54 45 35 25 17 15	$ \begin{array}{r} 12\\ 3\\ 17\\ 53\\ 43\\ \hline 17\\ 33\\ \end{array} $	20 30 40 50	$\begin{array}{c} 6 \\ 9 \\ 12 \\ 15 \\ \hline 0 \end{array}$	$ \begin{array}{ c c } 7 \\ 10 \\ 13 \\ 16 \\ \hline 1 \end{array} $	$ \begin{array}{c c} 7 \\ 10 \\ 13 \\ \hline 16 \\ \hline 1 \end{array} $	$ \begin{array}{c c} 8 \\ 11 \\ 14 \\ 17 \\ \hline 2 \end{array} $		
10 20 30 40 50	21 12 3 14 54 45	38 29 20 11 2	15 56 47 37 28 19	13 4 15 55 45 35	$ \begin{array}{c c} 30 \\ 21 \\ 12 \\ 2 \\ 15 52 \\ \end{array} $	48 39 29 19 9	$\begin{bmatrix} 5 \\ 16 & 56 \\ 46 \\ 36 \\ 26 \end{bmatrix}$	23 13 3 16 53 42	10 20 30 40 50	3 6 9 11 14	$\begin{bmatrix} 3 \\ 6 \\ 9 \\ 12 \\ 15 \end{bmatrix}$	4 7 10 13 15	5 7 10 13 16	5 8 11 14 17	
74 0 10 20 30 40 50	14 36 28 19 10 1 13 52	14 53 44 35 26 17 8	15 9 0 14 51 42 33 23	15 26 17 8 14 58 49 39	15 42 33 24 14 5 14 55	15 59 49 40 30 20 10	16 16 6 15 56 46 36 26	16 32 22 12 2 15 52 42	0 10 20 30 40 50	0 3 5 8 11 13	$\begin{bmatrix} 1 \\ 3 \\ 6 \\ 9 \\ 11 \\ 14 \end{bmatrix}$	$\begin{vmatrix} 1 \\ 4 \\ 6 \\ 9 \\ 12 \\ 14 \end{vmatrix}$	2 4 7 10 12 15	5 8 11 13 16	Sub. 1' 1" 2 2 3 3 4 4 5 5
75 0 10 20 30 40 50	13 43 34 25 16 7 12 58	13 59 50 41 32 22 13	14 14 5 13 56 46 37 28	$ \begin{array}{c cccc} 14 & 29 & \\ 20 & & 11 \\ & & 1 \\ 13 & 52 & \\ & & 42 & \\ \end{array} $	14 45 36 27 17 7 13 57	15 1 14 52 42 32 22 12	15 16 7 14 57 47 37 27	15 32 22 12 2 14 51 41	0 10 20 30 40 50	0 3 5 8 10 13	1 3 6 8 11 13	1 4 6 9 11 14	2 4 7 9 12 14	2 5 7 10 12 15	6 6 7 7 8 8 9 9
76 0 10 20 30 40 50	12 49 41 32 23 14 5	13 4 12 55 46 37 27 18	13 18 9 0 12 51 41 32	13 33 24 14 5 12 55 45	13 47 38 28 19 9 12 59	14 2 13 53 43 33 23 13	14 17 7 13 57 47 36 26	14 31 21 11 11 13 50 40	0 10 20 30 40 50	0 2 5 7 9 12	0 3 5 8 10 12	1 3 6 8 10 13	1 4 6 8 11 13	2 4 7 9 11 14	
77 0 10 20 30 40 50	11 56 47 38 29 19 10	12 9 0 11 51 42 32 23	12 22 13 4 11 55 45 35	12 36 27 17 8 11 58 48	12 49 40 30 21 11 1	13 3 12 53 43 33 23 13	13 16 7 12 57 47 36 26	13 30 20 10 0 12 49 39	0 10 20 30 40 50	0 2 4 7 9 11	0 3 5 7 9 11	1 3 5 7 9 12	1 4 6 8 10 12	2 4 6 8 10 13	
78 0 10 20 30 40 50	11 1 10 52 43 34 25 16	11 14 5 10 55 46 37 28	11 26 17 8 10 58 48 39	11 39 30 20 10 0 10 51	11 52 42 32 22 12 3	12 4 11 54 44 34 24 15	12 16 6 11 56 46 36 26	12 29 19 8 11 58 48 38	0 10 20 30 40 50	0 2 4 6 8 10	0 2 4 6 8 10	1 3 5 7 9 11	1 3 5 7 9 11	2 4 6 8 10 12	
79 0 10 20 30 40 50	10 7 9 58 49 40 31 22	10 19 9 0 9 50 41 32	10 30 21 11 1 9 52 43	10 42 32 22 12 3 9 54	10 53 43 33 23 13 4	11 5 10 55 44 34 24 15	11 16 6 10 56 45 35 25	11 28 17 7 10 56 46 36	0 10 20 30 40 50	0 2 4 6 7 9	0 2 4 6 8 10	1 3 4 6 8 10	1 3 5 7 8 10	1 3 5 7 9 11	

Correction of the Moon's Apparent Altitude for Parallax and Refraction.

[Barometer 30 inches.—Fahrenheit's Thermometer 50°.]

Moon's			н	orizontal	parallax				Seconds of parallax.	Corr		for s	econd Ada.	ls of	Corr.
app. alt.	54'	55′	56′	57′	58′	59′	60′	61′	Secor	0"	2"	4"	6"	8"	minutes of alt.
80 0 10 20 30 40 50	9 13 3 8 54 45 36 27	9 23 14 4 8 55 46 37	9 34 24 14 5 8 55 46	9 44 34 24 15 5 8 56	9 55 45 35 25 15 6	7 " 10 5 9 55 45 35 25 15	, " 10 15 5 9 55 45 35 25	7 " 10 26 15 5 9 54 44 34	" 0 10 20 30 40 50	" 0 2 3 5 7 8	" 0 2 4 5 7 9	" 1 2 4 6 7 9	1 3 4 6 8 9	" 1 3 5 6 8 10	
81 0 10 20 30 40 50	8 18 9 7 59 50 41 32	8 27 18 8 7 59 50 41	8 37 27 17 8 7 59 49	8 46 36 26 17 8 7 58	8 56 46 36 26 17 7	9 5 8 55 45 35 25 15	9 14 4 8 54 44 34 24	9 24 13 3 8 52 42 32	0 10 20 30 40 50	0 1 3 4 6 7	0 2 3 5 6 8	1 2 4 5 6 8	1 2 4 5 7 8	1 3 4 6 7 9	
82 0 10 20 30 40 50	7 23 14 4 6 55 46 37	7 31 22 12 3 6 54 45	7 40 30 20 11 2 6 52	7 48 38 28 19 10 0	7 57 47 37 27 17 7	8 5 7 55 45 35 25 15	8 13 3 7 52 42 32 22	8 22 11 0 7 50 40 30	0 10 20 30 40 50	$\begin{bmatrix} 0 \\ 1 \\ 3 \\ 4 \\ 5 \\ 7 \\ \hline \end{bmatrix}$	0 2 3 4 6 7	$ \begin{array}{c c} 1 \\ 2 \\ 3 \\ 5 \\ 6 \\ 7 \end{array} $	1 2 3 5 6 7	1 2 4 5 6 8	
83 0 10 20 30 40 50	6 28 19 9 0 5 51 42	6 35 26 16 7 5 58 49	6 43 33 23 13 4 5 55	6 50 40 30 20 11 1	6 57 47 37 27 18 8	7 5 6 54 44 34 24 14	7 12 2 6 51 41 31 21	7 20 9 6 58 48 38 27	0 10 20 30 40 50	0 1 2 3 5 6	0 1 3 4 5 6	0 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 6 7	Sub. 1' 1" 2 2 3 3 4 4 5 5
84 0 10 20 30 40 50	5 33 23 14 5 4 56 47	$5 \ \begin{array}{r} 39 \\ 30 \\ 20 \\ 10 \\ 1 \\ 4 \ 52 \\ \end{array}$	5 45 36 26 16 7 4 58	5 52 42 32 22 13 3	5 58 48 38 28 18 8	6 4 5 54 44 34 24 14	6 10 0 5 50 39 29 19	6 17 6 5 55 45 35 25	0 10 20 30 40 50	0 1 2 3 4 5	0 1 2 3 4 5	0 1 2 3 4 5	1 2 3 3 4 5	1 2 3 4 5 6	6 6 7 7 8 8 9 9
85 0 10 20 30 40 50	4 37 28 18 9 0 3 51	4 43 33 24 14 5 3 56	4 48 38 28 19 10 0	4 53 43 33 23 14 5	4 58 48 38 28 19 9	5 4 4 53 43 33 23 13	5 9 4 58 48 38 28 18	5 14 3 4 53 43 33 22	0 10 20 30 40 50	0 1 2 2 3 4	$\begin{bmatrix} 0 \\ 1 \\ 2 \\ 3 \\ 3 \\ 4 \end{bmatrix}$	0 1 2 3 4 4	0 1 2 3 4 5	1 1 2 3 4 5	
86 0 10 20 30 40 50	3 42 33 23 14 5 2 56	$ \begin{array}{r} 3 & 46 \\ 37 \\ 27 \\ 18 \\ 9 \\ 2 & 59 \end{array} $	3 50 41 31 21 12 3	$\begin{bmatrix} 3 & 55 \\ 45 & 35 \\ 25 & 16 \\ 6 & 6 \end{bmatrix}$	3 59 49 39 29 19 9	4 3 3 53 43 33 23 13	$\begin{bmatrix} 4 & 7 \\ 3 & 57 \\ 46 \\ 36 \\ 26 \\ 16 \end{bmatrix}$	4 11 1 3 50 40 30 19	$\begin{bmatrix} 0 \\ 10 \\ 20 \\ 30 \\ 40 \\ 50 \end{bmatrix}$	0 1 1 2 3 3	0 1 1 2 3 3	0 1 2 2 3 3	0 1 2 2 3 4	1 1 2 2 3 4	
87 0 10 20 30 40 50	2 47 37 28 19 10	2 50 40 31 21 12 3	2 53 43 33 24 15 5	2 56 46 36 26 17 7	2 59 49 39 29 19 9	$\begin{bmatrix} 3 & 2 \\ 2 & 52 \\ 42 & 32 \\ 22 & 12 \end{bmatrix}$	3 5 2 55 45 34 24 14	3 9 2 58 47 37 27 16	$\begin{array}{c} 0 \\ 10 \\ 20 \\ 30 \\ 40 \\ 50 \end{array}$	$egin{pmatrix} 0 \\ 0 \\ 1 \\ 1 \\ 2 \\ 2 \end{pmatrix}$	$\begin{bmatrix} 0 \\ 1 \\ 1 \\ 2 \\ 2 \end{bmatrix}$	$egin{array}{c} 0 \\ 1 \\ 1 \\ 2 \\ 2 \\ 2 \end{array}$	0 1 1 2 2 3	0 1 1 2 2 3	
88 0 10 20 30 40 50	1 51 42 32 23 14 5	1 53 43 34 25 15 6	1 55 45 36 26 16 7	1 57 47 38 28 19 9	1 59 49 39 29 20 10	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2 4 1 53 43 32 22 12	2 6 1 55 44 34 24 13	0 10 20 30 40 50	0 0 1 1 1 1	0 0 1 1 1 1	0 0 1 1 1 1	0 0 1 1 1 2	0 0 1 1 1 2	
89 0 10 20 30 40 50	0 56 46 37 28 19 9	0 57 47 37 28 19 10	0 58 48 38 28 19 10	0 59 49 39 29 19 10	1 0 0 50 40 30 20 10	1 1 0 51 40 30 20 10	1 2 0 51 41 31 21 10	1 3 0 52 42 31 21 10	0 10 20 30 40 50	0 0 0 0 0 1	0 0 0 0 0 1	0 0 0 0 0 0	0 0 0 0 0 1	0 0 0 0 0 1	

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TABLE 25.

Table showing the variation of the altitude of an object arising from a change of 100 seconds in the declination. Unmarked quantities in the Table are positive. If the change move the body toward the elevated pole, apply the correction to the altitude with the signs in the Table; otherwise, change the signs.

	,		- 6															1
Declination.	ude.]	atitud	e of sar	ne nan	ne as d	leclina	tion.		Latit	ude of	differer	t nam	e from	declins	tion.	nde.	Declination.
Decli	Altitude.	70°	60°	50°	40°	30°	200	100	000	10°	200	30°	40°	500	60°	700	Altitude.	Decli
0	0 10 20 30 40 50 60 70	94 95 100	87 88 92 100	76 78 82 88 100	64 65 68 74 84 100	50 51 53 57 65 78 100	34 35 36 39 45 53 68 100	17 18 18 20 22 27 35 51	0 0 0 0 0 0 0	17 18 18 20 22 27 35 51	34 35 36 39 45 53 68 100	50 51 53 57 65 78 100	64 65 68 74 84 100	76 78 82 88 100	87 88 92 100	94 95 100	0 10 20 30 40 50 60 70	0
2	0 10 20 30 40 50 60 70	94 95 99 107	87 87 91 98 111	77 77 81 87 98 116	64 65 67 73 82 97 124	50 50 52 56 63 74 95 139	34 34 35 38 42 50 64 92	17 17 17 18 20 24 30 43	$ \begin{array}{r} 0 \\ -1 \\ -1 \\ -2 \\ -2 \\ -3 \\ -5 \\ -8 \end{array} $	17 18 19 22 25 30 40 59	34 35 37 41 47 57 73 108	50 51 54 59 68 81 103	64 66 69 76 86 103	77 78 83 90 102	87 88 93 102	94 96 101	0 10 20 30 40 50 60 70	2
4	0 10 20 30 40 50 60 70	94 94 98 105	87 87 90 96 107	77 77 79 85 94 111	64 64 66 70 78 92 117	50 50 51 54 59 70 88 127	34 34 36 39 45 56 81	17 16 16 16 17 19 23 32	$ \begin{array}{r} 0 \\ -1 \\ -3 \\ -4 \\ -6 \\ -8 \\ -12 \\ -19 \end{array} $	17 19 21 24 29 35 47 70	34 36 39 44 51 62 81 119	50 52 56 62 71 86 112	64 67 71 78 90 109	77 79 84 93 106	87 89 95 104	94 97 103	0 10 20 30 40 50 60 70	4
6	0 10 20 30 40 50 60 70	94 94 97 103	87 87 89 94 105	77 76 78 83 92 107	65 64 65 69 76 88 111	50 49 50 52 57 66 82 118	34 33 33 34 36 41 51 72	17 16 15 14 14 15 17 22	$ \begin{array}{r} 0 \\ -2 \\ -4 \\ -6 \\ -9 \\ -13 \\ -18 \\ -29 \end{array} $	17 20 22 26 32 40 53 80	34 37 40 46 54 66 87 129	50 53 57 64 74 91 119	65 67 73 81 93 113	77 80 86 95 109	87 90 96 107	94 98 104	0 10 20 30 40 50 60 70	6
8	0 10 20 30 40 50 60	95 94 96 101	87 86 88 93 102	77 76 77 81 89 104	65 63 64 67 73 84 105	50 49 49 50 54 62 77 109	35 33 32 32 33 37 45 62	18 15 14 12 11 11 11 13	$ \begin{array}{r} 0 \\ -3 \\ -5 \\ -8 \\ -12 \\ -17 \\ -24 \\ -39 \end{array} $	18 20 24 28 35 44 59 90	35 38 40 48 57 70 93 140	50 54 59 66 78 95 125	65 68 74 83 97 118	77 81 87 97 113	87 91 98 109	95 99 106	0 10 20 30 40 50 60 70	8
10	0 10 20 30 40 50 60 70	95 94 95 100	88 86 87 91 100	78 75 76 80 87 100	65 63 63 65 70 81 100	51 48 48 49 51 58 71 100	35 32 31 30 31 33 39 53	18 15 12 10 8 6 5 3	$ \begin{array}{r} 0 \\ -3 \\ -6 \\ -10 \\ -15 \\ -21 \\ -31 \\ -48 \end{array} $	18 21 25 30 38 48 66 100	35 38 43 50 60 75 100	51 55 60 69 81 100	65 69 76 86 100	78 82 89 100	88 92 100	95 100	0 10 20 30 40 50 60 70	10
12	0 10 20 30 40 50 60 70	96 94 94 99 108	89 86 86 90 98 112	78 76 76 78 84 97 120	66 63 62 64 68 77 95 134	51 48 47 47 49 54 65 91	35 32 29 28 28 29 33 44	18 14 11 8 5 2 -1 -6	$ \begin{array}{r} 0 \\ -4 \\ -8 \\ -12 \\ -18 \\ -25 \\ -37 \\ -58 \end{array} $	18 22 27 33 41 53 72 110	35 39 45 53 63 80 107	51 56 62 71 85 105	66 70 78 88 104	78 83 91 103	89 94 102	96 101	0 10 20 30 40 50 60 70	12
ation.	le.	70°	60°	50°	40°	30°	200	10°	00	100	200	300	400	500	600	70°	ď	tion.
Declination.	Altitude.	L	atitude	e of san	ie nam	e as d	eclinat	ion.		Latitu	de of d	lifferen	t name	from (leclina	tion.	Altitude.	Declination.

Table showing the variation of the altitude of an object arising from a change of 100 seconds in the declination. Unmarked quantities in the Table are positive. If the change move the body toward the elevated pole, apply the correction to the altitude with the signs in the Table; otherwise, change the signs.

	1								1								_	1 :
Declination.	ıde.		Latitue	le of sa	me nai	me as	declin	ation.	r	Latitud	le of d	ifferen	t name	from	leclina	tion.	uđe.	Declination.
Decli	Altitude.	70°	600	500	400	300	200	100	00	10°	200	300	400	500	600	70°	Altitude.	Decli
14	0 10 20 30 40 50 60 70	97 94 94 97 106	89 86 86 89 96 109	79 76 75 77 82 93 115	66 63 61 62 66 73 89 125	52 48 46 45 46 50 60 82	35 31 27 26 25 25 27 35	" 18 14 10 6 2 - 2 - 7 -16	" 0 - 4 - 9 - 14 - 21 - 30 - 43 - 69	" 18 23 28 35 44 58 79 121	35 40 45 55 67 85 114	52 57 64 74 88 110	66 72 80 91 107	79 85 93 106	89 95 104	97 103	0 10 20 30 40 50 60 70	14
16	0 10 20 30 40 50 60 70	98 94 94 96 104	90 86 85 87 94 106	80 76 74 75 80 90 110	67 63 61 61 63 70 84 117	52 48 45 44 44 47 54 73	36 31 27 25 22 21 21 25	$ \begin{array}{r} 18 \\ 13 \\ 9 \\ 4 \\ 0 \\ -6 \\ -14 \\ -26 \\ \end{array} $	0 - 5 - 10 - 17 - 24 - 34 - 50 - 79	18 23 30 37 48 62 86 132	36 41 48 58 70 90 121	52 58 66 77 92 115	67 73 82 94 111	80 86 95 109	90 97 106	98 104	0 10 20 30 40 50 60 70	16
18	0 10 20 30 40 50 60 70	99 95 93 95 102	91 87 85 86 92 103	81 76 74 74 78 87 105	68 63 60 59 61 66 79 108	53 48 44 42 41 43 49 64	36 31 26 23 20 17 16 16	18 13 8 2 - 3 -10 -20 -36	$ \begin{array}{r} 0 \\ -6 \\ -12 \\ -19 \\ -27 \\ -39 \\ -56 \\ -89 \end{array} $	18 24 31 40 51 67 93 143	36 42 50 60 74 95 128	53 59 68 79 96 121	68 74 84 97 116	81 88 98 112	91 98 109	99 106	0 10 20 30 40 50 60 70	18
20	0 10 20 30 40 50 60 70	100 95 93 94 100	92 87 85 85 90 100	82 76 74 73 76 83 100	68 63 60 58 59 63 74 100	53 48 43 40 39 39 43 56	36 31 25 21 17 13 10 6	18 12 6 0 - 6 -15 -26 -46	0 - 6 - 13 - 21 - 31 - 43 - 63 -100	18 25 33 42 55 72 100	36 43 52 63 78 100	53 60 70 82 100	68 76 86 100	82 89 100	92 100	100	0 10 20 30 40 50 60 70	20
22	0 10 20 30 40 50 60 70	96 93 94 98 110	93 88 85 85 88 97 117	83 77 73 72 74 80 95 131	69 63 59 57 57 60 68 92	54 48 43 39 36 36 36 38 47	37 30 25 19 14 9 4 - 3	19 12 5 - 2 - 9 -19 -33 -56	0 - 7 - 15 - 23 - 34 - 48 - 70 -111	19 26 35 45 58 77 107	37 45 54 66 82 106	54 62 72 86 104	69 78 88 103	83 91 103	93 102	101	0 10 20 30 40 50 60 70	22
24	0 10 20 30 40 50 60 70	97 93 93 97 107	95 88 85 84 86 93 112	84 77 73 71 72 77 91 123	70 64 59 56 54 56 64 83	55 48 42 38 34 32 32 38	37 30 24 18 12 5 - 2 -13	19 11 4 - 4 -12 -23 -39 -67	0 - 8 - 16 - 26 - 37 - 53 - 77 -122	115	37 46 56 69 86 111	55 63 74 89 109	70 79 91 107	84 93 105	95 104	103	0 10 20 30 40 50 60 70	24
26	0 10 20 30 40 50 60 70	98 95 93 96 105	96 89 85 83 85 92 108	85 78 73 70 70 74 86 115	72 64 59 54 52 53 58 75	56 48 41 36 32 28 27 29	38 30 23 16 9 1 - 8 -23	19 11 3 - 6 -16 -28 -46 -78	0 - 9 - 18 - 28 - 41 - 58 - 84 - 134	19 28 38 50 66 88 123	38 47 58 72 91 117	56 65 77 92 114	72 81 94 111	85 95 108	96 106	105	0 10 20 30 40 50 60 70	26
Declination.	Altitude.	70°	60°	50°	400	300	20°	10°	0°	10°	200	300	400	50°	60°	70°	Altitude.	Declination.
Dec	Alt		Latitud	le of sa	me nar	ue as (ueclina	tion.	L	atitud	e or di	iiterent	name	irom d	leclinat	ion.	Alt	Dec

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TABLE 26.

Variation of Altitude in one minute from meridian passage.

Lati-		De	clinatio	n of the	same nan	ne as the	latitude;	upper tra	nsit; redu	ction add	itive.		Lati-
tude.	00	1°	20	30	40	50	60	7°	80	90	10°	110	tude.
0 1 2 3 4	28.1	"	"	"	28.1	22. 4 28. 0	18. 7 22. 4 28. 0	16. 0 18. 6 22. 3 27. 9	14.0 16.0 18.6 22.3 27.8	12. 4 13. 9 15. 9 18. 5 22. 2	11. 1 12. 4 13. 9 15. 8 18. 5	10. 1 11. 1 12. 3 13. 8 15. 8	0 1 2 3 4
5 6 7 8 9	22. 4 18. 7 16. 0 14. 0 12. 4	28. 0 22. 4 18. 6 16. 0 13. 9	28. 0 22. 3 18. 6 15. 9	27. 9 22. 3 18. 5	27. 8 22. 2	27.7	27. 4		-	27.7	22. 1 27. 6	18. 4 22. 0 27. 4	5 6 7 8 9
10 11 12 13 14	$ \begin{array}{c} 11.1 \\ 10.1 \\ 9.2 \\ 8.5 \\ 7.9 \\ \hline 7.3 \end{array} $	12. 4 11. 1 10. 1 9. 2 8. 5	$ \begin{array}{c c} 13.9 \\ 12.3 \\ 11.1 \\ 10.0 \\ 9.2 \\ \hline 00000000000000000000000000000000000$	15. 8 13. 8 12. 3 11. 0 10. 0	18. 5 15. 8 13. 8 12. 2 10. 9	22. 1 18. 4 15. 7 13. 7 12. 1	27. 6 22. 0 18. 3 15. 6 13. 6	27. 4 21. 9 18. 2 15. 5	27. 3 21. 7 18. 0	27. 1 21. 6	26.9	00.7	10 11 12 13 14
15 16 17 18 19	7. 3 6. 8 6. 4 6. 0 5. 7	7.8 7.3 6.8 6.4 6.0	8.4 7.8 7.2 6.8 6.3	9. 1 8. 4 7. 8 7. 2 6. 7	9. 9 9. 1 8. 3 7. 7 7. 2	10. 9 9. 8 9. 0 8. 3 7. 6	12.1 10.8 9.8 8.9 8.2	13. 5 12. 0 10. 7 9. 7 8. 9	15. 4 13. 4 11. 9 10. 6 9. 6	17. 9 15. 3 13. 3 11. 8 10. 6	21. 4 17. 8 15. 2 13. 2 11. 7	26. 7 21. 3 17. 6 15. 0 13. 1	15 16 17 18 19
20 21 22 23 24	5. 4 5. 1 4. 9 4. 6 4. 4	5. 7 5. 4 5. 1 4. 8 4. 6	6. 0 5. 6 5. 3 5. 0 4. 8 4. 6	6. 3 5. 9 5. 6 5. 3 5. 0	6. 7 6. 3 5. 9 5. 5 5. 2	7. 1 6. 6 6. 2 5. 8 5. 5	7. 6 7. 0 6. 6 6. 1 5. 8	8. 1 7. 5 7. 0 6. 5 6. 1	8.8 8.1 7.5 6.9 6.4	9. 5 8. 7 8. 0 7. 4 6. 8	10.5 9.5 8.6 7.9 7.3	11. 6 10. 4 9. 4 8. 5 7. 8	20 21 22 23 24
25 26 27 28 29	4. 2 4. 0 3. 9 3. 7 3. 5	4. 2 4. 0 3. 8 3. 7	4. 3 4. 1 4. 0 3. 8	4.7 4.5 4.3 4.1 3.9	5. 0 4. 7 4. 5 4. 3 4. 1	5. 2 4. 9 4. 7 4. 4 4. 2	5. 4 5. 1 4. 9 4. 6 4. 4	5. 7 5. 4 5. 1 4. 8 4. 6	6. 0 5. 7 5. 3 5. 0 4. 7	6. 4 6. 0 5. 6 5. 3 5. 0	6.8 6.3 5.9 5.5 5.2	7. 2 6. 7 6. 2 5. 8 5. 5	25 26 27 28 29
30 31 32 33 34	3. 4 3. 3 3. 1 3. 0 2. 9	3. 5 3. 4 3. 2 3. 1 3. 0	3. 6 3. 5 3. 3 3. 2 3. 1	3. 7 3. 6 3. 4 3. 3 3. 2	3. 9 3. 7 3. 5 3. 4 3. 2	4. 0 3. 8 3. 7 3. 5 3. 3	4. 2 4. 0 3. 8 3. 6 3. 4	4.3 4.1 3.9 3.7 3.6	4. 5 4. 3 4. 1 3. 9 3. 7	4. 7 4. 4 4. 2 4. 0 3. 8	4.9 4.6 4.4 4.2 3.9	5. 1 4. 8 4. 6 4. 3 4. 1	30 31 32 33 34
35 36 37 38 39	2.8 2.7 2.6 2.5 2.4	2. 9 2. 8 2. 7 2. 6 2. 5	3. 0 2. 8 2. 7 2. 6 2. 5	3. 0 2. 9 2. 8 2. 7 2. 6	3. 1 3. 0 2. 9 2. 8 2. 7	3. 2 3. 1 2. 9 2. 8 2. 7	3. 3 3. 2 3. 0 2. 9 2. 8	3. 4 3. 3 3. 1 3. 0 2. 9	3. 5 3. 4 3. 2 3. 0 2. 9	3. 6 3. 5 3. 3 3. 2 3. 0	3. 7 3. 6 3. 4 3. 2 3. 1	3. 9 3. 7 3. 5 3. 3 3. 2	35 36 37 38 39
40 41 42 43 44	2. 3 2. 3 2. 2 2. 1 2. 0	2. 4 2. 3 2. 2 2. 1 2. 1	2. 4 2. 4 2. 3 2. 2 2. 1	2. 5 2. 4 2. 3 2. 2 2. 1	2. 6 2. 5 2. 4 2. 3 2. 2	2. 6 2. 5 2. 4 2. 3 2. 2	2. 7 2. 6 2. 5 2. 4 2. 3	2.7 2.6 2.5 2.4 2.3	2. 8 2. 7 2. 6 2. 5 2. 4	2.9 2.8 2.6 2.5 2.4	3. 0 2. 8 2. 7 2. 6 2. 5	3. 0 2. 9 2. 8 2. 7 2. 5	40 41 42 43 44
45 46 47 48 49	2. 0 1. 9 1. 8 1. 8 1. 7	2. 0 1. 9 1. 9 1. 8 1. 7	2. 0 2. 0 1. 9 1. 8 1. 8	2. 1 2. 0 1. 9 1. 9 1. 8	2. 1 2. 0 2. 0 1. 9 1. 8	2. 2 2. 1 2. 0 1. 9 1. 8	2. 2 2. 1 2. 0 2. 0 1. 9	2. 2 2. 2 2. 1 2. 0 1. 9	2. 3 2. 2 2. 1 2. 0 1. 9	2.3 2.2 2.1 2.1 2.0	2. 4 2. 3 2. 2 2. 1 2. 0	2. 4 2. 3 2. 2 2. 1 2. 1	45 46 47 48 49
50 51 52 53 54	1. 6 1. 6 1. 5 1. 5 1. 4	1. 7 1. 6 1. 6 1. 5 1. 4	1. 7 1. 6 1. 6 1. 5 1. 5	1.7 1.7 1.6 1.5 1.5	1. 8 1. 7 1. 6 1. 6 1. 5	1. 8 1. 7 1. 6 1. 6 1. 5	1. 8 1. 7 1. 7 1. 6 1. 5	1.8 1.8 1.7 1.6 1.6	1. 9 1. 8 1. 7 1. 7 1. 6	1.9 1.8 1.8 1.7 1.6	1. 9 1. 9 1. 8 1. 7 1. 6	2. 0 1. 9 1. 8 1. 7 1. 7	50 51 52 53 54
55 56 57 58 59 60	1. 4 1. 3 1. 3 1. 2 1. 2 1. 1	1. 4 1. 3 1. 3 1. 2 1. 2 1. 1	1. 4 1. 4 1. 3 1. 3 1. 2 1. 2	1. 4 1. 4 1. 3 1. 3 1. 2 1. 2	1.5 1.4 1.3 1.3 1.2 1.2	1.5 1.4 1.4 1.3 1.3	1.5 1.4 1.4 1.3 1.3	1. 5 1. 4 1. 4 1. 3 1. 3 1. 2	1. 5 1. 5 1. 4 1. 3 1. 3 1. 2	1. 6 1. 5 1. 4 1. 4 1. 3 1. 2	1.6 1.5 1.4 1.4 1.3 1.3	1.6 1.5 1.5 1.4 1.3 1.3	55 56 57 58 59 60
	0°	10	20	30	40	50	60	70	80	90	10°	110	
		De	clination	of the	ame nam	e as the	latitude; ı	upper trai	nsit; redu	ction add	itive.		

Variation of Altitude in one minute from meridian passage.

foti	1	Dec	clination	of the	same na	me as th	e latitud	le; upper	transit	reduct	ion addi	tive.		Lati-
Lati- tude.	120	13°	140	150	16°	170	18°	190	20°	210	220	230	240	tude.
0 1 2 3 4	9. 2 10. 1 11. 1 12. 3 13. 8 15. 7	8.5 9.2 10.0 11.0 12.2 13.7	7. 9 8. 5 9. 2 10. 0 10. 9	7. 3 7. 8 8. 4 9. 1 9. 9	6.8 7.3 7.8 8.4 9.1	6. 4 6. 8 7. 2 7. 8 8. 3 9. 0	6. 0 6. 4 6. 8 7. 2 7. 7 8. 3	5.7 6.0 6.3 6.7 7.2 7.6	5. 4 5. 7 6. 0 6. 3 6. 7 7. 1	5. 1 5. 4 5. 6 5. 9 6. 3 6. 6	4.9 5.1 5.3 5.6 5.9 6.2	4.6 4.8 5.0 5.3 5.5 5.8	4. 4 4. 6 4. 8 5. 0 5. 2 5. 5	0 1 2 3 4
6 7 8 9	18.3 21.9 27.3	15. 6 18. 2 21. 7 27. 1	13.6 15.5 18.0 21.6	12. 1 13. 5 15. 4 17. 9	10. 8 12. 0 13. 4 15. 3	9.8 10.7 11.9 13.3	8. 9 9. 7 10. 6 11. 8	8. 2 8. 9 9. 6 10. 6	7.6 8.1 8.8 9.5	7. 0 7. 5 8. 1 8. 7	6.6 7.0 7.5 8.0	6. 1 6. 5 6. 9 7. 4	5. 8 6. 1 6. 4 6. 8	6 7 8 9
10 11 12 13 14			26. 9	21. 4 26. 7	17. 8 21. 3 26. 5	15. 2 17. 6 21. 1 26. 2	13. 2 15. 0 17. 5 20. 9 26. 0	11. 7 13. 1 14. 9 17. 3 20. 7	10. 5 11. 6 13. 0 14. 8 17. 1	9. 5 10. 4 11. 5 12. 8 14. 6	8. 6 9. 4 10. 3 11. 3 12. 7	7. 9 8. 5 9. 3 10. 1 11. 2	7. 3 7. 8 8. 4 9. 2 10. 0	10 11 12 13 14
15 16 17 18 19	26. 5 21. 1 17. 5 14. 9	26. 2 20. 9 17. 3	26. 0 20. 7	25. 7				25. 7	20. 4 25. 4	16. 9 20. 2 25. 1	14. 4 16. 7 20. 0 24. 8	12. 5 14. 3 16. 5 19. 7 24. 5	11. 1 12. 4 14. 1 16. 3 19. 5	15 16 17 18 19
20 21 22 23 24	13. 0 11. 5 10. 3 9. 3 8. 4	14. 8 12. 8 11. 3 10. 1 9. 2	17. 1 14. 6 12. 7 11. 2 10. 0	20. 4 16. 9 14. 4 12. 5 11. 1	25. 4 20. 2 16. 7 14. 3 12. 4	25. 1 20. 0 16. 5 14. 1	24. 8 19. 7 16. 3	24. 5 19. 5	24. 2				24. 2	20 21 22 23 24
25 26 27 28 29	7. 7 7. 1 6. 6 6. 2 5. 7	8. 3 7. 6 7. 0 6. 5 6. 1	9. 0 8. 2 7. 5 7. 0 6. 4	9. 9 8. 9 8. 1 7. 4 6. 9	10. 9 9. 8 8. 8 8. 0 7. 3	12. 2 10. 8 9. 6 8. 7 7. 9	13. 9 12. 1 10. 6 9. 5 8. 6	16. 1 13. 7 11. 9 10. 5 9. 4	19. 2 15. 9 13. 5 11. 7 10. 3	23. 8 18. 9 15. 6 13. 3 11. 5	23. 5 18. 6 15. 4 13. 1	23. 1 18. 3 15. 1	22. 7 18. 0	25 26 27 28 29
30 31 32 33 34	5. 4 5. 1 4. 8 4. 5 4. 3	5. 7 5. 3 5. 0 4. 7 4. 4	6. 0 5. 6 5. 2 4. 9 4. 6	6. 4 5. 9 5. 5 5. 1 4. 8	6. 8 6. 3 5. 8 5. 4 5. 1	7. 2 6. 7 6. 2 5. 7 5. 3	7. 8 7. 1 6. 5 6. 1 5. 6	8. 4 7. 7 7. 0 6. 4 5. 9	9. 2 8. 3 7. 5 6. 9 6. 3	10. 1 9. 0 8. 1 7. 4 6. 8	11.3 10.0 8.9 8.0 7.3	12. 8 11. 1 9. 8 8. 7 7. 8	14. 9 12. 6 10. 9 9. 6 8. 6	30 31 32 33 34
35 36 37 38 39	4. 0 3. 8 3. 6 3. 4 3. 3	4. 2 4. 0 3. 8 3. 6 3. 4	4. 4 4. 1 3. 9 3. 7 3. 5	4.5 4.3 4.0 3.8 3.6	4.7 4.5 4.2 4.0 3.8	5. 0 4. 7 4. 4 4. 1 3. 9	5. 2 4. 9 4. 6 4. 3 4. 0	5. 5 5. 1 4. 8 4. 5 4. 2	5. 8 5. 4 5. 0 4. 7 4. 4	6. 2 5. 7 5. 3 4. 9 4. 6	6. 6 6. 1 5. 6 5. 2 4. 8	7. 1 6. 5 6. 0 5. 5 5. 1	7. 7 7. 0 6. 4 5. 8 5. 4	35 36 37 38 39
40 41 42 43 44	3. 1 3. 0 2. 9 2. 7 2. 6	3. 2 3. 1 2. 9 2. 8 2. 7	3. 3 3. 2 3. 0 2. 9 2. 7	3. 4 3. 3 3. 1 3. 0 2. 8	3. 6 3. 4 3. 2 3. 0 2. 9	3. 7 3. 5 3. 3 3. 1 3. 0	3.8 3.6 3.4 3.2 3.1	4. 0 3. 7 3. 5 3. 3 3. 2	4. 1 3. 9 3. 7 3. 5 3. 3	4. 3 4. 0 3. 8 3. 6 3. 4	4. 5 4. 2 4. 0 3. 7 3. 5	4. 7 4. 4 4. 1 3. 9 3. 6	5. 0 4. 6 4. 3 4. 0 3. 8	40 41 42 43 44
45 46 47 48 49	2. 5 2. 4 2. 3 2. 2 2, 1	2. 6 2. 4 2. 3 2. 2 2. 1	2. 6 2. 5 2. 4 2. 3 2. 2	2. 7 2. 6 2. 4 2. 3 2. 2	2.8 2.6 2.5 2.4 2.3	2.8 2.7 2.6 2.4 2.3	2. 9 2. 8 2. 6 2. 5 2. 4	3. 0 2. 8 2. 7 2. 6 2. 4	3. 1 2. 9 2. 8 2. 6 2. 5	3. 2 3. 0 2. 9 2. 7 2. 6	3. 3 3. 1 2. 9 2. 8 2. 6	3. 4 3. 2 3. 0 2. 9 2. 7	3. 5 3. 3 3. 1 3. 0 2. 8	45 46 47 48 49
50 51 52 53 54	2.0 1.9 1.8 1.8 1.7	2. 0 2. 0 1. 9 1. 8 1. 7	2. 1 2. 0 1. 9 1. 8 1. 7	2. 1 2. 0 1. 9 1. 9 1. 8	2. 2 2. 1 2. 0 1. 9 1. 8	2. 2 2. 1 2. 0 1. 9 1. 8	2. 3 2. 2 2. 1 2. 0 1. 9	2. 3 2. 2 2. 1 2. 0 1. 9	2. 4 2. 3 2. 1 2. 0 1. 9	2. 4 2. 3 2. 2 2. 1 2. 0	2. 5 2. 4 2. 2 2. 1 2. 0	2. 6 2. 4 2. 3 2. 2 2. 1	2. 6 2. 5 2. 4 2. 2 2. 1	50 51 52 53 54
55 56 57 58 59 60	1.6 2.5 1.5 1.4 1.4 1.3	1.6 1.6 1.5 1.4 1.4 1.3	1. 7 1. 6 1. 5 1. 5 1. 4 1. 3	1. 7 1. 6 1. 5 1. 5 1. 4 1. 3	1. 7 1. 6 1. 6 1. 5 1. 4 1. 4	1. 8 1. 7 1. 6 1. 5 1. 5 1. 4	1.8 1.7 1.6 1.5 1.5	1.8 1.7 1.6 1.6 1.5 1.4	1. 9 1. 8 1. 7 1. 6 1. 5 1. 4	1. 9 1. 8 1. 7 1. 6 1. 5 1. 5	1. 9 1. 8 1. 7 1. 6 1. 6 1. 5	2. 0 1. 9 1. 8 1. 7 1. 6 1. 5	2. 0 1. 9 1. 8 1. 7 1. 6 1. 5	55 56 57 58 59 60
	12°	18°	140	15°	16°	17°	18°	19°	200	210	220	230	240	
		De	clination	of the	same na	me as th	e latitud	e; upper	transit;	reducti	on addit	dve.		

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TABLE 26. Variation of Altitude in one minute from meridian passage.

		Declination of the same name as the latitude; upper transit; reduction additive.													
	Lati- tude.	250	260	270	280	290	300	310	320	330	340	850	360	370	Lati- tude.
	0 1 2 3	4. 2 4. 4 4. 6 4. 7	4. 0 4. 2 4. 3 4. 5	3.9 4.0 4.1 4.3	3.7 3.8 4.0 4.1	3.5 3.7 3.8 3.9	3.4 3.5 3.6 3.7	3.3 3.4 3.5 3.6	3.1 3.2 3.3 3.4	3.0 3.1 3.2 3.3 3.4	2.9 3.0 3.1 3.2 3.3	2.8 2.9 3.0 3.0 3.1	2.7 2.8 2.8 2.9	2.6 2.7 2.7 2.8 2.9	0 1 2 3 4
	5 6 7 8 9	5. 0 5. 2 5. 4 5. 7 6. 0 6. 4	$ \begin{array}{r} 4.7 \\ 4.9 \\ 5.1 \\ 5.4 \\ 5.7 \\ 6.0 \end{array} $	4.5 4.7 4.9 5.1 5.3 5.6	4.3 4.4 4.6 4.8 5.0 5.3	$ \begin{array}{r} 4.1 \\ 4.2 \\ 4.4 \\ 4.6 \\ 4.8 \\ 5.0 \end{array} $	3.9 4.0 4.2 4.3 4.5 4.7	3.7 3.8 4.0 4.1 4.3 4.4	$ \begin{array}{r} 3.5 \\ \hline 3.7 \\ 3.8 \\ 3.9 \\ 4.1 \\ 4.2 \\ \end{array} $	3. 5 3. 6 3. 7 3. 9 4. 0	3. 3 3. 5 3. 6 3. 7 3. 8	3. 2 3. 3 3. 4 3. 5 3. 6	$ \begin{array}{r} 3.0 \\ \hline 3.1 \\ 3.2 \\ 3.3 \\ 3.4 \\ 3.5 \end{array} $	3. 0 3. 0 3. 1 3. 2 3. 3	5 6 7 8 9
	10 11 12 13 14	$ \begin{array}{c} 6.8 \\ 7.2 \\ 7.7 \\ 8.3 \\ 9.1 \\ \hline 9.9 \end{array} $	$ \begin{array}{r} 6.3 \\ 6.7 \\ 7.1 \\ 7.6 \\ 8.2 \\ \hline 8.9 \end{array} $	5. 9 6. 2 6. 6 7. 1 7. 6 8. 1	5. 5 5. 8 6. 2 6. 5 7. 0 7. 4	5. 2 5. 5 5. 8 6. 1 6. 4 6. 9	$ \begin{array}{r} 4.9 \\ 5.1 \\ 5.4 \\ 5.7 \\ 6.0 \\ \hline 6.4 \end{array} $	$ \begin{array}{r} 4.6 \\ 4.8 \\ 5.1 \\ 5.3 \\ 5.6 \\ \hline 5.9 \end{array} $	4. 4 4. 6 4. 8 5. 0 5. 2 5. 5	4. 2 4. 3 4. 5 4. 7 4. 9 5. 2	$ \begin{array}{r} 3.9 \\ 4.1 \\ 4.3 \\ 4.4 \\ 4.6 \\ \hline 4.8 \end{array} $	3.8 3.9 4.0 4.2 4.4 4.5	$ \begin{array}{r} 3.6 \\ 3.7 \\ 3.8 \\ 4.0 \\ 4.1 \\ \hline 4.3 \end{array} $	3.4 3.5 3.6 3.8 3.9	10 11 12 13 14 15
	15 16 17 18 19 20	10. 9 12. 2 13. 9 16. 1 19. 2	9. 8 10. 8 12. 1 13. 7	$ \begin{array}{c} 8.1 \\ 8.8 \\ 9.6 \\ 10.6 \\ 11.9 \\ \hline 13.5 \end{array} $	8. 0 8. 7 9. 5 10. 5	$ \begin{array}{c} 0.9 \\ 7.3 \\ 7.9 \\ 8.6 \\ 9.4 \\ \hline 10.3 \end{array} $	$ \begin{array}{c c} 6.4 \\ 6.8 \\ 7.2 \\ 7.8 \\ 8.4 \\ \hline 9.2 \end{array} $	$ \begin{array}{r} 3.9 \\ 6.3 \\ 6.7 \\ 7.1 \\ 7.7 \\ \hline 8.3 \end{array} $	5. 8 6. 2 6. 6 7. 0	5. 4 5. 7 6. 1 6. 4 6. 9	$ \begin{array}{c c} 4.8 \\ 5.1 \\ 5.3 \\ 5.6 \\ 6.0 \\ \hline 6.3 \end{array} $	$ \begin{array}{r} 4.8 \\ 5.0 \\ 5.2 \\ \hline 5.8 \end{array} $	4.5 4.7 4.9 5.1 5.4	4. 2 4. 4 4. 6 4. 8 5. 0	16 17 18 19 20
	21 22 23 24 25	23. 8	18. 9 23. 5	15. 6 18. 6 23. 1	13. 3 15. 4 18. 3 22. 7	10. 3 11. 5 13. 1 15. 1 18. 0	10. 2 11. 3 12. 8 14. 9	9. 1 10. 0 11. 1 12. 6	8. 2 8. 9 9. 8 10. 9	7. 4 8. 0 8. 7 9. 6	6.8 7.3 7.9 8.6 9.4	6. 2 6. 6 7. 1 7. 7 8. 4	5. 7 6. 1 6. 5 7. 0	5. 3 5. 6 6. 0 6. 4 6. 8	21 22 23 24 25
	26 27 28 29 30	22. 3 17. 7	21.9			22.0	21. 9	17. 4 21. 5	14. 3 17. 0 21. 1	12. 1 14. 0 16. 7 20. 6	10.5 11.9 13.8 16.3	9. 2 10. 3 11. 7 13. 5	8. 2 9. 1 10. 1 11. 4 13. 2	7. 4 8. 1 8. 9 9. 9	26 27 28 29 30
	31 32 33 34 35	14. 6 12. 4 10. 7 9. 4 8. 4	17. 4 14. 3 12. 1 10. 5	21. 5 17. 0 14. 0 11. 9	21. 1 16. 7 13. 8	20. 6 16. 3 13. 5	20. 2	19.8			20. 2	19.8	15. 6 19. 3	12. 9 15. 3 18. 9	31 32 33 34 35
	36 37 38 39 40	7. 5 6. 8 6. 2 5. 7	8. 2 7. 4 6. 7 6. 1 5. 6	9. 1 8. 1 7. 2 6. 5	10. 1 8. 9 7. 9 7. 1 6. 4	11. 4 9. 9 8. 7 7. 7 6. 9	13. 2 11. 1 9. 6 8. 5	15. 6 12. 9 10. 9 9. 4 8. 2	19. 3 15. 3 12. 6 10. 6	18. 9 14. 9 12. 2 10. 4	18. 4 14. 5 11. 9	17.9	17. 4		36 37 38 39 40
	41 42 43 44	4.9 4.5 4.2 3.9	5. 2 4. 8 4. 4 4. 1	5. 5 5. 0 4. 6 4. 3	5.8 5.3 4.9 4.5	6. 2 5. 7 5. 2 4. 8	6. 7 6. 1 5. 5 5. 1	7. 3 6. 6 5. 9 5. 4	9. 2 8. 0 7. 1 6. 4 5. 8	8. 9 7. 8 6. 9 6. 2	10. 1 8. 7 7. 6 6. 7	14.1 11.6 9.8 8.5 7.4	13. 8 11. 3 9. 5 8. 2	17. 0 13. 4 11. 0 9. 3	41 42 43 44
	45 46 47 48 49 50	3.7 3.5 3.3 3.1 2.9 2.7	3.8 3.6 3.4 3.2 3.0 2.8	$ \begin{array}{r} 4.0 \\ 3.7 \\ 3.5 \\ 3.3 \\ 3.1 \\ \hline 2.9 \end{array} $	4. 2 3. 9 3. 6 3. 4 3. 2	4. 4 4. 1 3. 8 3. 5 3. 3	$ \begin{array}{r} 4.7 \\ 4.3 \\ 4.0 \\ 3.7 \\ 3.4 \\ \hline 3.2 \end{array} $	4. 9 4. 5 4. 2 3. 9 3. 6	5. 2 4. 8 4. 4 4. 0 3. 7	3.9	6. 0 5. 4 4. 9 4. 5 4. 1	6. 6 5. 9 5. 3 4. 8 4. 4	7. 2 6. 4 5. 7 5. 1 4. 6	8. 0 7. 0 6. 2 5. 5 5. 0	45 46 47 48 49
	50 51 52 53 54 55	2. 6 2. 4 2. 3 2. 2	2.6 2.5 2.3 2.2	2.9 2.7 2.6 2.4 2.3	3. 0 2. 8 2. 6 2. 5 2. 3	3.1 2.9 2.7 2.5 2.4	3. 2 3. 0 2. 8 2. 6 2. 5	3. 3 3. 1 2. 9 2. 7 2. 5	3.5 3.2 3.0 2.8 2.6	3. 6 3. 4 3. 1 2. 9 2. 7	3.8 3.5 3.2 3.0 2.8	$ \begin{array}{r} 4.0 \\ 3.7 \\ 3.4 \\ 3.1 \\ 2.9 \\ \hline 2.7 \end{array} $	4. 2 3. 9 3. 6 3. 3 3. 0	4.5 4.1 3.7 3.4 3.2	50 51 52 53 54
	56 57 58 59 60	1. 9 1. 8 1. 7 1. 6 1. 6	2.1 2.0 1.9 1.8 1.7 1.6	2.1 2.0 1.9 1.8 1.7 1.6	2. 2 2. 1 2. 0 1. 8 1. 7 1. 6	2. 3 2. 1 2. 0 1. 9 1. 8 1. 7	2. 3 2. 2 2. 0 1. 9 1. 8 1. 7	2. 4 2. 2 2. 1 2. 0 1. 9 1. 7	2. 4 2. 3 2. 2 2. 0 1. 9 1. 8	2. 5 2. 4 2. 2 2. 1 1. 9 1. 8	2. 6 2. 4 2. 3 2. 1 2. 0 1. 9	2. 7 2. 5 2. 3 2. 2 2. 0 1. 9	2.8 2.6 2.4 2.3 2.1 2.0	2. 9 2. 7 2. 5 2. 3 2. 2 2. 0	55 56 57 58 59 60
		250	260	270	280	290	30°	310	320	330	340	359	360	370	
l			Dec	lination	of the	same na	me as th	e latitud	e; upper	transit	; reducti	on addi	tive.		

TABLE 26.

Variation of Altitude in one minute from meridian passage.

Lati-													Lati-	
tude.	380	390	40°	410	420	43°	440	450	460	470	480	490	50°	tude.
0	"	"	"	"	"	"	"	"	"	"	"	"	"	٥
$0 \\ 1$	$2.5 \\ 2.6$	2.4 2.5	$\begin{array}{c} 2.3 \\ 2.4 \end{array}$	$\frac{2.3}{2.3}$	$\begin{array}{c} 2.2 \\ 2.2 \end{array}$	$\begin{array}{c c} 2.1 \\ 2.2 \end{array}$	$\begin{array}{c c} 2.0 \\ 2.1 \end{array}$	$\begin{array}{c c} 2.0 \\ 2.0 \end{array}$	1. 9 1. 9	1.8 1.9	1.8	1.7 1.7	1.7 1.7	$0 \\ 1$
3	2.6	2.5	2.4	2.4	2.3	2.2	2.1	2.0	2.0	1.9	1.8	1.8	1.7	$\frac{1}{2}$
3 4	2.7	$\begin{array}{ c c c } 2.6 \\ 2.7 \end{array}$	$\begin{array}{c c} 2.5 \\ 2.6 \end{array}$	$2.4 \\ 2.5$	2.3 2.4	2. 2 2. 3	$\frac{2.2}{2.2}$	$\begin{array}{c c} 2.1 \\ 2.1 \end{array}$	$\begin{array}{c} 2.0 \\ 2.0 \end{array}$	$1.9 \\ 2.0$	1.9	1.8	1.7 1.8	$\frac{3}{4}$
5	$\begin{array}{r} 2.8 \\ \hline 2.8 \end{array}$	$\frac{2.7}{2.7}$	$\frac{2.6}{2.6}$	$\frac{2.5}{2.5}$	$\frac{2.4}{2.4}$	$\frac{2.3}{2.3}$	$\frac{2.2}{2.2}$	$\frac{2.1}{2.2}$	$\frac{2.0}{2.1}$	$\frac{2.0}{2.0}$	$\frac{1.9}{1.9}$	$\frac{1.8}{1.9}$	1.8	5
6	2.9	2.8	2.7	2.6	2.5	2.4	2.3	2. 2	2.1	2.0	2.0	1.9	1.8	6
7 8	3.0	$\begin{array}{ c c c } 2.9 \\ 2.9 \end{array}$	$2.7 \\ 2.8$	2. 6 2. 7	2. 5 2. 6	$\begin{array}{ c c c } 2.4 \\ 2.5 \end{array}$	2. 3 2. 4	2. 2 2. 3	$\frac{2.2}{2.2}$	$\begin{array}{c c} 2.1 \\ 2.1 \end{array}$	$\begin{bmatrix} 2.0 \\ 2.0 \end{bmatrix}$	$1.9 \\ 1.9$	$1.8 \\ 1.9$	7 8
9	3.2	3.0	2.9	2.8	2.7	2.5	2.4	2.3	2.2	2.2	2.1	2.0	1.9	8 9
10	3. 3 3. 4	$\frac{3.1}{3.2}$	$\frac{3.0}{3.1}$	$\frac{2.8}{2.9}$	2. 7 2. 8	$\frac{2.6}{2.7}$	$\begin{array}{c} 2.5 \\ 2.6 \end{array}$	$\begin{array}{c c} 2.4 \\ 2.4 \end{array}$	2. 3 2. 3	$\frac{2.2}{2.2}$	$\begin{array}{ c c c } 2.1 \\ 2.1 \end{array}$	$\begin{array}{c c} 2.0 \\ 2.1 \end{array}$	$\frac{1.9}{2.0}$	10 11
$\begin{array}{c} 11 \\ 12 \end{array}$	3.5	3. 3	3. 1	3.0	2.9	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0	12
13	3.6	3.4	3.2	3.1	2.9	2.8	$\begin{array}{c} 2.7 \\ 2.7 \end{array}$	2.6	2. 4 2. 5	2. 3 2. 4	2.2 2.3	$\begin{array}{c c} 2.1 \\ 2.2 \end{array}$	$\frac{2.0}{2.1}$	13
14	$\frac{3.7}{3.8}$	$\frac{3.5}{3.6}$	$\frac{3.3}{3.4}$	$\frac{3.2}{3.3}$	$\frac{3.0}{3.1}$	$\frac{2.9}{3.0}$	$\frac{2.7}{2.8}$	$\frac{2.6}{2.7}$	$\frac{2.3}{2.6}$	$\frac{2.4}{2.4}$	$\frac{2.3}{2.3}$	$\frac{2.2}{2.2}$	$\frac{2.1}{2.1}$	14 15
16	4.0	3.8	3.6	3.4	3.2	3.0	2.9	2.8	2.6	2.5	2.4	2.3	2, 2	16
17 18	4.1	3.9 4.1	3. 7 3. 8	3. 5 3. 6	3.3	$\begin{array}{ c c }\hline 3.1\\ 3.2\\ \end{array}$	3. 0 3. 1	$\begin{array}{c c} 2.8 \\ 2.9 \end{array}$	$\begin{array}{ c c c } 2.7 \\ 2.8 \end{array}$	2.6 2.6	$\begin{array}{ c c c c } 2.4 \\ 2.5 \end{array}$	2.3 2.4	$\begin{array}{c} 2.2 \\ 2.3 \end{array}$	17 18
19	4.5	4. 2	4.0	3.7	3.5	3.3	3.2	3.0	2.8	2.7	2.6	2.4	2.3	19
20	4.7	4.4	4.1	3.9	3.7	3.5	3.3	3.1	2.9	2.8	2.6	2.5	2, 4	20
21 22	4.9 5.2	4.6	4.3 4.5	$4.0 \\ 4.2$	3.8 4.0	3.6	3.4	3. 2 3. 3	3. 0 3. 1	$\frac{2.9}{2.9}$	2.7	$\begin{array}{ c c c } 2.6 \\ 2.6 \end{array}$	$2.4 \\ 2.5$	$\frac{21}{22}$
23	5.5	5.1	4.7	4.4	4.1	3.9	3.6	3.4	3. 2	3.0	2.9	2.7	2.6	23
$\frac{24}{25}$	$\frac{5.8}{6.2}$	$\begin{array}{ c c }\hline 5.4\\\hline 5.7\\\hline \end{array}$	$\frac{5.0}{5.3}$	$\frac{4.6}{4.9}$	$\frac{4.3}{4.5}$	$\frac{4.0}{4.2}$	$\frac{3.8}{3.9}$	$\frac{3.5}{3.7}$	$\frac{3.3}{3.5}$	$\frac{3.1}{3.3}$	$\frac{3.0}{3.1}$	$\frac{2.8}{2.9}$	$\frac{2.6}{2.7}$	24 25
26	6.7	6.1	5.6	5.2	4.8	4.4	4.1	3.8	3.6	3.4	3. 2	3.0	2.8	26
27 28	7. 2 7. 9	$6.5 \\ 7.1$	$\begin{array}{c c} 6.0 \\ 6.4 \end{array}$	5. 5 5. 8	5. 0 5. 3	4.6	4. 3 4. 5	4.0	$\begin{array}{ c c c } 3.7 \\ 3.9 \end{array}$	3. 5 3. 6	3.3	$\frac{3.1}{3.2}$	2. 9 3. 0	27 28
29	8.7	7.7	6.9	6. 2	5.7	5. 2	4.8	4.4	4.1	3.8	3.5	3. 3	3. 1	29
30	9.6	8.5	7.5	6.7	6.1	5.5	5.1	4.7	4.3	4.0	3.7	3.4	3. 2	30
$\begin{array}{c} 31 \\ 32 \end{array}$	$10.9 \\ 12.6$	9.4 10.6	$\frac{8.2}{9.2}$	7. 3 8. 0	6.6	5. 9 6. 4	5.4	4. 9 5. 2	4.5	4. 2 4. 4	3. 9	3. 6 3. 7	3. 3 3. 5	$\begin{array}{c} 31 \\ 32 \end{array}$
33	14.9	12.2	10.4	8.9	7.8	6.9	6. 2	5.6	5.1	4.6	4.3	3.9	3.6	33
$\frac{34}{35}$	18.4	$\frac{14.5}{17.9}$	$\frac{11.9}{14.1}$	$\frac{10.1}{11.6}$	$\frac{8.7}{9.8}$	$\frac{7.6}{8.5}$	$\frac{6.7}{7.4}$	$\frac{6.0}{6.6}$	$\frac{5.4}{5.9}$	$\frac{4.9}{5.3}$	$\frac{4.5}{4.8}$	$\frac{4.1}{4.4}$	$\frac{3.8}{4.0}$	34 35
36		11.0	17.4	13.8	11.3	9.5	8.2	7.2	6.4	5.7	5.1	4.6	4. 2	36
37 38				17.0	13. 4 16. 5	11. 0 13. 0	9. 3 10. 7	8. 0 9. 0	7.0	6. 2 6. 8	5. 5 6. 0	5. 0 5. 3	4.5 4.8	37 38
39					10.0	16.0	12.6	10.3	8.7	7.5	6.5	5.8	5. 1	39
40							15.5	12. 2	10.0	8.4	7.2	6.3	5.6	40
$\begin{array}{c} 41 \\ 42 \end{array}$	16.5							15.0	11.8 14.5	9.7 11.4	$8.1 \\ 9.3$	7.0 7.9	6. 1 6. 7	$\frac{41}{42}$
43	13.0	16.0	75 5		•					14.0	11.0	9.0	7.6	43
44 45	9.0	$\frac{12.6}{10.3}$	$\frac{15.5}{12.2}$	15.0							13.6	$\frac{10.6}{13.1}$	$\frac{8.7}{10.2}$	44 45
46	7.7	8.7	10.0	11.8	14.5							20.7	12.6	46
47 48	6.8	7. 5 6. 5	$8.4 \\ 7.2$	9.7 8.1	11. 4 9. 3	14.0	13. 6							47 48
49	5. 3	5.8	6.3	7. 0	7.9	9.0	10.6	13.1						49
50	4.8	5.1	5.6	6.1	6.7	7.6	8.7	10.2	12.6	19 1				50 51
$\begin{array}{c} 51 \\ 52 \end{array}$	4. 3 3. 9	4.6	5. 0 4. 5	5. 4 4. 8	5. 9 5. 2	6.5	7. 3 6. 3	8. 4 7. 0	9.9	12. 1 9. 5	11.6			51 52
53	3.6	3.8	4.0	4.3	4.6	5.0	5.4	6.0	6.7	7.7	9.1	11.1	10.0	.53
54 55	$\frac{3.3}{3.0}$	$\frac{3.5}{3.2}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{3.9}{3.5}$	$\frac{4.1}{3.7}$	$\frac{4.4}{4.0}$	$\frac{4.8}{4.3}$	$\begin{array}{ c c c }\hline 5.2\\\hline 4.6\\\hline \end{array}$	$\begin{array}{ c c }\hline 5.8\\\hline 5.0\\\hline \end{array}$	$\frac{6.5}{5.5}$	$\frac{7.4}{6.2}$	$\frac{8.7}{7.1}$	$\frac{10.6}{8.3}$	$\begin{array}{r} 54 \\ \hline 55 \end{array}$
56	2.8	2.9	3.1	3. 2	3.4	3.6	3.8	4.1	4.4	4.8	5.3	5.9	6.8	56
57 58	2. 6 2. 4	2. 7 2. 5	2.8 2.6	$\begin{array}{ c c c c } 2.9 \\ 2.7 \end{array}$	$\begin{array}{ c c c } 3.1 \\ 2.8 \end{array}$	$\begin{array}{ c c c }\hline 3.2 \\ 2.9 \\ \end{array}$	3.4	3.6	$\begin{array}{ c c }\hline 3.9\\ 3.5\end{array}$	4. 2 3. 7	4.6	5.0	5. 6 4. 8	57 58
59	2, 2	2.3	2.4	2.5	2.6	2.7	2.8	3.0	3.1	3. 3	3.6	3.8	4.2	59
60	2.1	2.1	2. 2	2. 3	2.4	2.5	2.6	2.7	2.8	3.0	3.2	3. 4	3.6	60
	380	390	40°	410	420	43°	440	450	46°	470	480	490	50°	
	Declination of the same name as the latitude; upper transit; reduction additive.													

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TABLE 26.

Variation of Altitude in one minute from meridian passage.

Tati		Declination of the same name as the latitude; upper transit; reduction additive.											Lati-	
Lati- tude.	510	520	530	540	550	560	570	580	590	600	610	620	63°	tude.
°	1.6	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0	0
$\frac{1}{2}$	$1.6 \\ 1.6$	1.6 1.6	1.5 1.5	1.4	1.4	1.3 1.4	1.3 1.3	1.2	$\begin{array}{ c c } 1.2 \\ 1.2 \end{array}$	1.2	1.1	1.1	1.0	1 2 3 4
3 4	1.7 1.7	1.6 1.6	$\begin{array}{c c} 1.5 \\ 1.6 \end{array}$	1.5	1.4	1.4	1.3 1.3	1.3	1.2	1.2	1.1	1.1	1.0	
5 6	1.7	1.7	1.6	1.5	1.5	1.4	1.4	1.3	1.3	1.2 1.2	1.1	1.1	1.1	5 6
7 8	1.8	1.7 1.7 1.8	1.6 1.7 1.7	1.6 1.6	1.5 1.5 1.6	1.4 1.5 1.5	1.4 1.4 1.4	1.3 1.4 1.4	1.3 1.3 1.3	1.2 1.2 1.3	1. 2 1. 2 1. 2	1.1 1.1 1.1	1.1 1.1 1.1	7 8 9
$\frac{9}{10}$	$\frac{1.8}{1.9}$	1.8 1.8 1.8	1.7	$ \begin{array}{ c c c } \hline 1.6 \\ 1.7 \\ \hline \end{array} $	1.6 1.6 1.6	$1.5 \\ 1.5 \\ 1.5$	1.4 1.4 1.5	1.4	1.3 1.3	1.3	$ \begin{array}{c c} 1.2 \\ 1.2 \\ 1.2 \end{array} $	$ \begin{array}{c c} 1.1 \\ 1.2 \\ 1.2 \end{array} $	1.1	10 11
$\begin{array}{c c} 11 \\ 12 \\ 13 \end{array}$	$egin{array}{c} 1.9 \\ 1.9 \\ 2.0 \\ \end{array}$	1.8 1.8 1.9	1. 7 1. 8 1. 8	1.7 1.7 1.7	1.6 1.6 1.6	1. 6 1. 6	1.5 1.5 1.5	1.4 1.4 1.4	1. 4 1. 4	1.3 1.3	$\begin{vmatrix} 1.2 \\ 1.2 \\ 1.3 \end{vmatrix}$	$\begin{array}{ c c } 1.2 \\ 1.2 \\ 1.2 \end{array}$	1.1	12 13
15	$\frac{2.0}{2.0}$	$\frac{1.9}{1.9}$	1.8	1.7	$\frac{1.7}{1.7}$	1.6	1.5	1.5	1.4	1.3	1.3	$\begin{array}{ c c }\hline 1.2\\\hline 1.2\\\hline \end{array}$	$\frac{1.2}{1.2}$	14
16 17	$\begin{array}{c c} 2.1 \\ 2.1 \end{array}$	$\begin{bmatrix} 2.0 \\ 2.0 \end{bmatrix}$	1.9 1.9	1.8 1.8	1.7	1.6 1.7	1.6 1.6	1.5 1.5	1.4 1.5	1. 4 1. 4	1.3 1.3	1. 2 1. 3	1.2	16 17
18 19	$\begin{bmatrix} 2.2 \\ 2.2 \end{bmatrix}$	$\begin{bmatrix} 2.1 \\ 2.1 \end{bmatrix}$	$\begin{bmatrix} 2.0 \\ 2.0 \end{bmatrix}$	$\begin{array}{ c c } 1.9 \\ 1.9 \end{array}$	1.8	1.7 1.7	1.6 1.6	1.5 1.6	1.5 1.5	1. 4 1. 4	1.3 1.4	1.3 1.3	1. 2 1. 2	18 19
20 21	2.3	$\begin{array}{ c c }\hline 2.1\\ 2.2\\ \hline \end{array}$	2.0	1.9	1.9 1.9	1.8	1.7	1.6 1.6	1.5 1.5	1.4	1.4	1.3	1. 2	20 21
22 23	2.4	2.2	2.1	2.0	1.9 2.0	1.8	1.7	1.6	1.6 1.6	1.5 1.5	1.4	1.3 1.4	1.3 1.3 1.3	22 23 24
24 25 26	$\frac{2.5}{2.6}$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{2.2}{2.3}$	$\begin{array}{ c c }\hline 2.1\\\hline 2.2\\2.2\\2.2\\\end{array}$	$ \begin{array}{ c c c c } \hline 2.0 \\ 2.1 \\ \end{array} $	$\frac{1.9}{1.9}$	$\frac{1.8}{1.8}$	1.7	$ \begin{array}{ c c c } \hline 1.6 \\ 1.7 \\ \hline \end{array} $	$ \begin{array}{r} 1.5 \\ 1.6 \\ 1.6 \end{array} $	1.5 1.5 1.5	1.4	$ \begin{array}{c c} 1.3 \\ 1.3 \\ 1.3 \end{array} $	25
26 27 28	$egin{array}{c c} 2.6 \\ 2.7 \\ 2.8 \\ \end{array}$	$\begin{bmatrix} 2.5 \\ 2.6 \\ 2.6 \end{bmatrix}$	2.3 2.4 2.5	2. 2 2. 3 2. 3	2. 1 2. 1 2. 2	2.0 2.0 2.1	$ \begin{array}{c c} 1.9 \\ 1.9 \\ 2.0 \end{array} $	1.8 1.8 1.8	1.7 1.7 1.7	1.6 1.6 1.6	1.5 1.5 1.5	1.4 1.4 1.5	1. 4	26 27 28
28 29 30	$\frac{2.8}{2.9}$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{2.5}{2.5}$	$\frac{2.3}{2.4}$	2.3	$\frac{2.1}{2.1}$	$\frac{2.0}{2.0}$	1.9	1.8	1.7	1.6	$\frac{1.5}{1.5}$	1.4	29 30
31 32	3. 1 3. 2	2. 8 2. 9 3. 0	$\begin{bmatrix} 2.0 \\ 2.7 \\ 2.8 \end{bmatrix}$	2.5 2.5 2.6	2. 4 2. 4 2. 4	2. 2 2. 2 2. 3	2. 0 2. 1 2. 2	2.0	1.9 1.9	1.7	1.6 1.7	1.5 1.6	1.4	31
33 34	3. 4 3. 5	$\begin{bmatrix} 3.1 \\ 3.2 \end{bmatrix}$	2.9 3.0	$\begin{bmatrix} 2.7 \\ 2.8 \end{bmatrix}$	2. 5 2. 6	2. 4 2. 4	2. 2 2. 3	2. 1 2. 1	1.9 2.0	1.8 1.9	1.7 1.7	1.6 1.6	1.5 1.5	32 33 34
35 36	3. 7 3. 9	3.4	3.1	2. 9 3. 0	2.7	2. 5 2. 6	2.3	2. 2 2. 3	$\begin{array}{c c} 2.0 \\ 2.1 \end{array}$	1. 9 2. 0	1.8	1.7	1.6 1.6	35 36 37
37 38	4.1	3.7	3.4	3. 2	2.9 3.0	2.7	2.5 2.6	2.3	2.2	2.0	1.9	1.7	1.6	38
39 40	$\frac{4.6}{5.0}$	4.5	3.8	3.5	3.3	$\frac{2.9}{3.1}$	$\frac{2.7}{2.8}$	$\frac{2.5}{2.6}$	2.3	$\begin{array}{ c c }\hline 2.1\\\hline 2.2\\2.2\\2\end{array}$	$\frac{2.0}{2.0}$	1.8 1.9 1.9	$\frac{1.7}{1.8}$	39 40 41
$\begin{array}{c c} 41 \\ 42 \\ 43 \end{array}$	5. 4 5. 9 6. 5	4.8 5.2 5.7	4.3 4.6 5.0	3.9 4.1 4.4	3.5 3.7 4.0	3. 2 3. 4 3. 6	2.9 3.1 3.2	2.7 2.8 2.9	2. 5 2. 6 2. 7	2.3 2.4 2.5	2.1 2.2 2.3	$\begin{bmatrix} 1.9 \\ 2.0 \\ 2.1 \end{bmatrix}$	1.8 1.9 1.9	41 42 43
45	$\frac{7.3}{8.4}$	$\begin{array}{ c c }\hline 6.3\\\hline 7.0\\\hline \end{array}$	$\frac{5.0}{5.4}$	4.8	$\frac{4.0}{4.3}$	$\frac{3.8}{4.1}$	3.4	3.1	$\frac{2.7}{2.8}$	$\frac{2.3}{2.6}$	$\frac{2.3}{2.3}$	$\frac{2.1}{2.2}$	$\frac{2.0}{2.0}$	44 45
46 47	9.9	8.0 9.5	6.7	5.8 6.5	5.0 5.5	4.4	3. 9 4. 2	3.5	3. 1 3. 3	2. 8 3. 0	$\begin{bmatrix} 2.6 \\ 2.7 \end{bmatrix}$	$\begin{bmatrix} 2.3 \\ 2.4 \end{bmatrix}$	2. 1 2. 2	46 47
48 49		11.6	9. 1 11. 1	7. 4 8. 7	$\begin{bmatrix} 6.2 \\ 7.1 \end{bmatrix}$	5.3 5.9	4.6 5.0	4.0	3. 6 3. 8	3. 2 3. 4	2.8 3.0	$\begin{bmatrix} 2.6 \\ 2.7 \end{bmatrix}$	2.3 2.4	48 49
50 51				10.6	8.3 10.2	6.8	5. 6 6. 4	4.8 5.4	4. 2 4. 6	3.6 4.0	3.2	2.9 3.0	2.6	50 51
52 53 54						9.7	7.6 9.2	6. 1 7. 2 8 8	5.1 5.9 6.8	4.3	3.8 4.1 4.6	3.3 3.6 3.9	2.9 3.1 3.4	52 53 54
55 56	10. 2 7. 9	9.7						8.8	8.3	5.5 6.5 7.9	$ \begin{array}{r} 4.6 \\ \hline 5.3 \\ 6.1 \end{array} $	$ \begin{array}{r} 3.9 \\ 4.3 \\ 5.0 \end{array} $	$ \begin{array}{r} 3.4 \\ \hline 3.7 \\ 4.1 \end{array} $	55 56
57 58	6. 4 5. 4	7. 6 6. 1	$9.2 \\ 7.2$	8.8						1.0	7.4	5.8 7.0	4.7 5.4	57 58
59 60	4. 6 4. 0	5.1	5.9 4.9	6.8	8.3 6.5	7.9							6.6	59 60
	51°	520	530	540	550	560	570	580	590	60°	61°	620	63°	
		De	clination	on of the	same na	me as th	e latitud	ie; uppe	r transit	; reducti	ion addit	tive.		

Lati-		Decli	nation o	f a differ	ent name	from th	e latitude	; upper ti	ansit; rec	luction ac	lditive.		Lati-
tnde.	00	1°	20	30	40	50	60	70	80	90	100	110	tude.
0 1 2 3	28. 1	28. 1 22. 4	28. 1 22. 4 18. 7	28. 1 22. 4 18. 7 16. 0	28. 1 22. 4 18. 7 16. 0 14. 0	22. 4 18. 7 16. 0 14. 0 12. 5	18.7 16.0 14.0 12.5 11.2	16. 0 14. 0 12. 5 11. 2 10. 2	14. 0 12. 4 11. 2 10. 2 9. 3	12. 4 11. 2 10. 2 9. 3 8. 6	11. 1 10. 1 9. 3 8. 6 8. 0	10.1 9.3 8.6 8.0	0 1 2 3 4
5 6 7 8	22. 4 18. 7 16, 0 14. 0	18.7 16.0 14.0 12.4	16. 0 14. 0 12. 4 11. 2	14.0 12.5 11.2 10.2	12. 5 11. 2 10. 2 9. 3	11. 2 10. 2 9. 3 8. 6	10. 2 9. 3 8. 6 8. 0	9.3 8.6 8.0 7.5	8. 6 8. 0 7. 5 7. 0	8. 0 7. 5 7. 0 6. 6	7. 4 7. 0 6. 6 6. 2	$ \begin{array}{r} 7.4 \\ 7.0 \\ 6.6 \\ 6.2 \\ 5.9 \end{array} $	5 6 7 8
9 10 11 12 13	12. 4 11. 1 10. 1 9. 2 8. 5	11. 2 10. 1 9. 3 8. 5 7. 9	9.3 8.6 7.9 7.4	$ \begin{array}{r} 9.3 \\ \hline 8.6 \\ 8.0 \\ 7.4 \\ 6.9 \end{array} $	8.6 8.0 7.4 7.0 6.5	8.0 7.4 7.0 6.5 6.2	7.5 7.0 6.6 6.2 5.8	7.0 6.6 6.2 5.9 5.6	6. 6 6. 2 5. 9 5. 6 5. 3	6. 2 5. 9 5. 6 5. 3 5. 0	5. 9 5. 6 5. 3 5. 0 4. 8	5.6 5.3 5.1 4.8 4.6	9 10 11 12 13
14 15 ,16 17 18	7. 9 7. 3 6. 8 6. 4 6. 0	7. 4 6. 9 6. 5 6. 1 5. 7	6.9 6.5 6.1 5.8 5.5	6. 5 6. 1 5. 8 5. 5 5. 2	5.8 5.5 5.2 5.0	5.8 5.5 5.2 5.0 4.8	5.5 5.3 5.0 4.8 4.6	5. 3 5. 0 4. 8 4. 6 4. 4	5.0 4.8 4.6 4.4 4.2	4.8 4.6 4.4 4.2 4.1	4. 6 4. 4 4. 2 4. 1 3. 9	4.4 4.2 4.1 3.9 3.8	14 15 16 17 18
19 20 21 22 23	5.7 5.4 5.1 4.9 4.6	5. 4 5. 1 4. 9 4. 7 4. 4	5.2 4.9 4.7 4.5 4.3	4.9 4.7 4.5 4.3 4.1	4.7 4.5 4.3 4.1 4.0	4.5 4.3 4.2 4.0 3.8	4.4 4.2 4.0 3.9 3.7	4. 2 4. 0 3. 9 3. 7 3. 6	4.0 3.9 3.7 3.6 3.5	3.9 3.8 3.6 3.5 3.4	3.8 3.6 3.5 3.4 3.3	3. 6 3. 5 3. 4 3. 3 3. 2	19 20 21 22 23
24 25 26 27 28 29	4. 4 4. 2 4. 0 3. 9 3. 7 3. 5	4. 2 4. 1 3. 9 3. 7 3. 6 3. 4	3.9 3.8 3.6 3.5 3.3	3. 9 3. 8 3. 6 3. 5 3. 4 3. 2	3.8 3.7 3.5 3.4 3.3 3.1	3.7 3.5 3.4 3.3 3.2 3.1	3.6 3.4 3.3 3.2 3.1 3.0	3.5 3.3 3.2 3.1 3.0 2.9	$ \begin{array}{r} 3.4 \\ 3.2 \\ 3.1 \\ 3.0 \\ 2.9 \\ 2.8 \end{array} $	3.3 3.1 3.0 2.9 2.8 2.8	3. 2 3. 1 3. 0 2. 9 2. 8 2. 7	3.1 3.0 2.9 2.8 2.7 2.6	24 25 26 27 28 29
30 31 32 33 34	3.4 3.3 3.2 3.0 2.9	3. 3 3. 2 3. 1 2. 9 2. 8	3. 2 3. 1 3. 0 2. 9 2. 8	3. 1 3. 0 2. 9 2. 8 2. 7	3. 0 2. 9 2. 8 2. 7 2. 6	3. 0 2. 9 2. 8 2. 7 2. 6	2.9 2.8 2.7 2.6 2.5	2. 8 2. 7 2. 6 2. 5 2. 5	2. 7 2. 6 2. 6 2. 5 2. 4	2. 7 2. 6 2. 5 2. 4 2. 4	2. 6 2. 5 2. 5 2. 4 2. 3	2. 5 2. 5 2. 4 2. 3 2. 3	30 31 32 33 34
35 36 37 38 39	2.8 2.7 2.6 2.5 2.4	2. 7 2. 6 2. 5 2. 5 2. 4	2. 7 2. 6 2. 5 2. 4 2. 3	2. 6 2. 5 2. 4 2. 4 2. 3	2.5 2.5 2.4 2.3 2.2	2. 5 2. 4 2. 3 2. 3 2. 2	2. 4 2. 4 2. 3 2. 2 2. 1	2. 4 2. 3 2. 2 2. 2 2. 1	2. 3 2. 3 2. 2 2. 1 2. 1	2.3 2.2 2.2 2.1 2.0	2. 2 2. 2 2. 1 2. 1 2. 0	2. 2 2. 1 2. 1 2. 0 2. 0	35 36 37 38 39
40 41 42 43 44	2.3 2.3 2.2 2.1 2.0	2. 3 2. 2 2. 1 2. 1 2. 0	2. 2 2. 2 2. 1 2. 0 2. 0	2. 2 2. 1 2. 1 2. 0 1. 9	2. 2 2. 1 2. 0 2. 0 1. 9	2.1 2.1 2.0 1.9 1.9	2. 1 2. 0 2. 0 1. 9 1. 8	2.0 2.0 1.9 1.9	2.0 1.9 1.9 1.8 1.8	2.0 1.9 1.9 1.8 1.7	1.9 1.9 1.8 1.8	1. 9 1. 8 1. 8 1. 7 1. 7	40 41 42 43 44
45 46 47 48 49	2.0 1.9 1.8 1.8	1. 9 1. 9 1. 8 1. 7 1. 7	1.9 1.8 1.8 1.7 1.7	1.9 1.8 1.7 1.7 1.6	1.8 1.8 1.7 1.7	1.8 1.7 1.7 1.6 1.6	1.8 1.7 1.7 1.6 1.6	1.7 1.7 1.6 1.6	1.7 1.7 1.6 1.6 1.5	1.7 1.6 1.6 1.6 1.5	1.7 1.6 1.6 1.5 1.5	1. 6 1. 6 1. 6 1. 5 1. 5	45 46 47 48 49
50 51 52 53 54	1. 6 1. 6 1. 5 1. 5 1. 4	1. 6 1. 6 1. 5 1. 5 1. 4	1.6 1.6 1.5 1.4	1. 6 1. 5 1. 5 1. 4 1. 4	1.6 1.5 1.5 1.4 1.4	1.5 1.5 1.4 1.4 1.3	1.5 1.5 1.4 1.4 1.3	1.5 1.5 1.4 1.4 1.3	1.5 1.4 1.4 1.3 1.3	1.5 1.4 1.4 1.3 1.3	1. 4 1. 4 1. 4 1. 3 1. 3	1. 4 1. 4 1. 3 1. 3 1. 3	50 51 52 53 54
55 56 57 58 59 60	1. 4 1. 3 1. 3 1. 2 1. 2 1. 1	1. 4 1. 3 1. 3 1. 2 1. 2 1. 1	1.3 1.3 1.3 1.2 1.2	1.3 1.3 1.2 1.2 1.2 1.1	1.3 1.3 1.2 1.2 1.1	1.3 1.3 1.2 1.2 1.1	1.3 1.2 1.2 1.2 1.1 1.1	1.3 1.2 1.2 1.1 1.1	1.3 1.2 1.2 1.1 1.1	1. 2 1. 2 1. 2 1. 1 1. 1 1. 1	1.2 1.2 1.1 1.1 1.1	1. 2 1. 2 1. 1 1. 1 1. 1 1. 0	55 56 57 58 59 60
	00	10	20	30	40	50	60	70	80	90	100	110	
		Declin	ation of	a differe	ent name	from the	e latitude;	upper tr	ansit; red	luction ad	lditive.		

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TABLE 26.

 $\begin{tabular}{ll} \textbf{Variation of Altitude in one minute from meridian passage.} \end{tabular}$

Toti		Decli	nation o	of a differ	rent nap	ne from	the latit	ude; up	per trans	it; redu	ction ad	litive.		Lati-
Lati- tude.	120	130	140	15°	160	17°	180	190	200	21°	220	230	240	tude.
0	"	"	"	"	"	"	"	"	" "	"	"	"	"	٥
0	9. 2 8. 5	8. 5 7. 9	7.9 7.4	7.3 6.9	6.8	6.4 6.1	6. 0 5. 7	5.7 5.4	5. 4 5. 1	5.1 4.9	4.9 4.7	4.6 4.4	4. 4 4. 2	0
2	7. 9 7. 4	7. 4 6. 9	6. 9 6. 5	6. 5 6. 1	6. 1 5. 8	5.8 5.5	$5.5 \\ 5.2$	5. 2 4. 9	4.9 4.7	4.7 4.5	4.5 4.3	4.3 4.1	4. 1 3. 9	2 3
3 4	7. 0	6.5	6. 2	5.8	5.5	5.2	5. 0	4.7	4.5	4.3	4.1	4.0	3.8	4
5 6	6. 5 6. 2	6. 2 5. 8	5.8 5.5	5. 5 5. 3	5. 2 5. 0	5.0 4.8	4.8 4.6	4.5 4.4	4.3 4.2	4. 2	4.0 3.9	3.8 3.7	3.7 3.6	5 6
7	5.9	5.6	5.3	5.0	4.8	4.6	4.4	4.2	4.0	3.9	3.7	3.6	3.5	7
8 9	5. 6 5. 3	5.3 5.0	5. 0 4. 8	4.8 4.6	4.6	4.4	4. 2 4. 1	4.0 3.9	3. 9 3. 8	3. 7 3. 6	3. 6 3. 5	3.5 3.4	3. 4 3. 3	8 9
10	5.0	4.8	4.6	4.4	4.2	4.1	3.9	3.8	3.6	3. 5 3. 4	3. 4 3. 3	3.3	3.2	10
11 12	4.8 4.6	4. 6 4. 4	4. 4 4. 3	4. 2 4. 1	4. 1 3. 9	3.9 3.8	3. 8 3. 7	3. 6 3. 5	3. 5 3. 4	3.3	3.2	3.1	3.1 3.0	11 12
13 14	4.4	4.3 4.1	4. 1 3. 9	3.9	3.8 3.7	$\frac{3.7}{3.5}$	3. 5 3. 4	3. 4 3. 3	3. 3 3. 2	$\frac{3.2}{3.1}$	3. 1 3. 0	$\frac{3.0}{2.9}$	$\frac{2.9}{2.8}$	13 14
15	4.1	3.9	3.8	3.7	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.8	15
16 17	3.9 3.8	3. 8 3. 7	$\begin{array}{c} 3.7 \\ 3.5 \end{array}$	3.5 3.4	3. 4 3. 3	3. 3 3. 2	3. 2 3. 1	3. 1 3. 0	3. 0 2. 9	2.9 2.8	2.8 2.8	2.8 2.7	$\begin{array}{c c} 2.7 \\ 2.6 \end{array}$	16 17
18	3.7	3.5	3.4	3.3	3.2	3.1	3.0	2.9	2.9	2.8	2.7	2.6	2.5	18
$\frac{19}{20}$	$\begin{array}{c c} 3.5 \\ \hline 3.4 \end{array}$	$\frac{3.4}{3.3}$	$\frac{3.3}{3.2}$	$\frac{3.2}{3.1}$	$\frac{3.1}{\cdot 3.0}$	$\frac{3.0}{2.9}$	$\frac{2.9}{2.9}$	$\frac{2.9}{2.8}$	$\frac{2.8}{2.7}$	$\frac{2.7}{2.6}$	$\frac{2.6}{2.6}$	$\frac{2.6}{2.5}$	$\frac{2.5}{2.4}$	$\frac{19}{20}$
21 22	3. 3 3. 2	3. 2 3. 1	3. 1 3. 0	3.0	2.9 2.8	2.8 2.8	2.8 2.7	$2.7 \\ 2.6$	2.6 2.6	2.6 2.5	$2.5 \\ 2.4$	2. 4 2. 4	2. 4 2. 3	$\begin{array}{c} 21 \\ 22 \end{array}$
23	3.1	3.0	2.9	2.9 2.8	2.8	2.7	2.6	2.6	2.5	2.4	2.4	2.3	2.3	23
24 25	$\begin{array}{c c} 3.0 \\ \hline 2.9 \end{array}$	$\begin{array}{c c} 2.9 \\ \hline 2.8 \end{array}$	$\frac{2.8}{2.7}$	$\frac{2.8}{2.7}$	$\frac{2.7}{2.6}$	$\frac{2.6}{2.5}$	$\frac{2.5}{2.5}$	$\frac{2.5}{2.4}$	$\frac{2.4}{2.4}$	$\frac{2.4}{2.3}$	$\frac{2.3}{2.3}$	$\frac{2.3}{2.2}$	$\frac{2.2}{2.2}$	$\frac{24}{25}$
26	2.8	2.7	2.7	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.2	2.1	2.1	26
27 28	$\begin{bmatrix} 2.7 \\ 2.6 \end{bmatrix}$	2.7 2.6	$\frac{2.6}{2.5}$	$\begin{array}{c c} 2.5 \\ 2.5 \end{array}$	2.5 2.4	2.4 2.3	2.4 2.3	$2.3 \\ 2.2$	2. 2 2. 2	$\begin{array}{c} 2.2 \\ 2.1 \end{array}$	$2.1 \\ 2.1$	$2.1 \\ 2.1$	$\begin{array}{c c} 2.1 \\ 2.0 \end{array}$	27 28
29	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.0	2.0	2.0	29
30 31	2.5 2.4	2.4	$\frac{2.4}{2.3}$	$\begin{bmatrix} 2.3 \\ 2.3 \end{bmatrix}$	$\frac{2.3}{2.2}$	$\frac{2.2}{2.2}$	$\begin{array}{c} 2.2 \\ 2.1 \end{array}$	$2.1 \\ 2.1$	$\begin{array}{c} 2.1 \\ 2.0 \end{array}$	$\frac{2.0}{2.0}$	$\frac{2.0}{2.0}$	2. 0 1. 9	1.9 1.9	30 31
32 33	2.3 2.3	$\begin{bmatrix} 2.3 \\ 2.2 \end{bmatrix}$	$\frac{2.2}{2.2}$	$\begin{array}{c} 2.2 \\ 2.1 \end{array}$	$\frac{2.2}{2.1}$	$2.1 \\ 2.1$	2. 1 2. 0	$\frac{2.0}{2.0}$	2. 0 1. 9	$1.9 \\ 1.9$	$1.9 \\ 1.9$	1.9 1.8	1.8 1.8	32 33
34	2.2	2.2	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	34
35 36	$\begin{array}{c} 2.2 \\ 2.1 \end{array}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{2.1}{2.0}$	$\begin{array}{c c} 2.0 \\ 2.0 \end{array}$	2. 0 1. 9	2. 0 1. 9	1.9 1.9	1.9 1.8	1.8 1.8	1.8 1.8	1.8 1.7	1.7 1.7	1.7 1.7	35 36
37	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.6	37
38 39	$\begin{array}{c c} 2.0 \\ 1.9 \end{array}$	$\begin{array}{c c} 1.9 \\ 1.9 \end{array}$	$\frac{1.9}{1.9}$	1.9 1.8	1.8 1.8	1.8 1.8	1.8 1.7	1.8 1.7	1.7 1.7	1.7 1.6	1.7 1.6	1.6 1.6	$\begin{array}{c} 1.6 \\ 1.6 \end{array}$	38 ° 39
40 41	1.9 1.8	1.8 1.8	1.8 1.8	1.8 1.7	1.7 1.7	1.7 1.7	1.7 1.6	1.7 1.6	1.6 1.6	1.6 1.6	1.6 1.5	1.6 1.5	1.5 1.5	40 41
42	1.8	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	42
43 44	$\begin{array}{c c} 1.7 \\ 1.7 \end{array}$	1.7 1.6	$ \begin{array}{c} 1.7 \\ 1.6 \end{array} $	$\begin{bmatrix} 1.6 \\ 1.6 \end{bmatrix}$	1.6 1.6	$1.6 \\ 1.5$	$1.6 \\ 1.5$	$\frac{1.5}{1.5}$	1.5 1.5	1.5 1.5	1.5 1.4	1. 4 1. 4	1.4 1.4	43 44
45	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	45
46 47	$1.6 \\ 1.5$	$\frac{1.6}{1.5}$	$\frac{1.5}{1.5}$	$\begin{bmatrix} 1.5 \\ 1.5 \end{bmatrix}$	1.5 1.4	1.5 1.4	1.4 1.4	1.4 1.4	1.4 1.4	1.4 1.3	1.4 1.3	1.3 1.3	1.3 1.3	46 47
48 49	1.5 1.4	$\begin{bmatrix} 1.5 \\ 1.4 \end{bmatrix}$	1.4 1.4	1.4 1.4	1. 4 1. 4	$\frac{1.4}{1.3}$	1.4 1.3	1.4 1.3	1.3 1.3	1.3 1.3	1.3 1.3	$1.3 \\ 1.2$.1.3 1.2	48 49
50	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	50
51 52	1.4 1.3	$\begin{bmatrix} 1.3 \\ 1.3 \end{bmatrix}$	1.3 1.3	1.3 1.3	1.3 1.3	1.3 1.3	$\frac{1.3}{1.2}$	$\frac{1.2}{1.2}$	$1.2 \\ 1.2$	$\begin{array}{c} 1.2 \\ 1.2 \end{array}$	$\begin{array}{c} 1.2 \\ 1.2 \end{array}$	$\begin{array}{c c} 1.2 \\ 1.1 \end{array}$	$1.2 \\ 1.1$	$\begin{array}{c} 51 \\ 52 \end{array}$
53 54	1.3 1.2	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	53 54
55	1.2	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.1}$	$\frac{1.2}{1.1}$	$\frac{1.2}{1.1}$	$\frac{1.1}{1.1}$	$\frac{1.1}{1.1}$	$\frac{1.1}{1.1}$	$\frac{1.1}{1.1}$	$\frac{1.1}{1.1}$	1.1	55
56 57	1.2 1.1	1.1 1.1	1.1 1.1	1.1 1.1	1.1 1.1	1.1 1.1	1.1 1.1	$1.1 \\ 1.0$	1.1 1.0	1.1 1.0	1.0 1.0	1.0 1.0	1.0 1.0	56 57
58	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	58
59 60	1. 1 1. 0	1. 0 1. 0	1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 1.0	1.0 0.9	1.0	1.0 0.9	1.0 0.9	0.9	0.9	59 60
	120	18°	140	150	16°	170	180	190	200	210	220	230	240	
		Decl	ination	of a diffe	rent na	me from	the lati	tude; up	per tran	sit; redu	ction ad	lditive.		

ati-		Decli	nation o	f a differ	ent nan	e from t	he latit	ıde; upp	er trans	dt; redu	ction ad	ditive.		L
ide.	250	260	270	280	290	30°√	310	820	330	340	850	360	370	tu
0	"	"	"	"	"	"	"	"	"	"	"	"	"	
$\begin{array}{c} 0 \\ 1 \end{array}$	$\frac{4.2}{4.1}$	4.0 3.9	3.9	3.7 3.6	3. 5 3. 4	3.4	$\frac{3.3}{3.2}$	3.1	$\frac{3.0}{2.9}$	2.9 2.8	$\frac{2.8}{2.7}$	$\begin{array}{c} 2.7 \\ 2.6 \end{array}$	$2.6 \\ 2.6$	
2	3.9	3.8	3.6	3.5	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	
3 4	3.8	3.6	$\frac{3.5}{3.4}$	3.4	$\frac{3.2}{3.2}$	$\frac{3.1}{3.0}$	$\frac{3.0}{2.9}$	2.9 2.8	2.8 2.7	$2.7 \\ 2.6$	$\frac{2.6}{2.6}$	2.5 2.5	$\frac{2.4}{2.4}$	
5	3.6	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3	-
6	3.4	$\frac{3.3}{3.2}$	3.2	3.1	3. 0 2. 9	2.9 2.8	2.8 2.7	2.7	2.6 2.5	$2.5 \\ 2.5$	2.4	2.4	2.3	l
7 8	$\frac{3.3}{3.2}$	3.1	3.1 3.0	3.0 2.9	2.8	2. 7	2.7	$\frac{2.6}{2.6}$	2.5	2. 3	$\frac{2.4}{2.3}$	$\begin{array}{c} 2.3 \\ 2.3 \end{array}$	$\frac{2.2}{2.2}$	
9	3.1	3.0	2.9	2.9	2.8	2.7	2.6	2.5	2.4	2.4	2.3	2.2	2.2	
10 11	3. 1 3. 0	$\frac{3.0}{2.9}$	2.9 2.8	2.8 2.7	$\frac{2.7}{2.6}$	2.6 2.5	2. 5 2. 5	2. 5 2. 4	2. 4 2. 3	2.3 2.3	2. 2 2. 2	2. 2 2. 1	$\frac{2.1}{2.1}$	$\frac{1}{1}$
12	2.9	2.8	2.7	2.6	2.6	2.5	2.4	2.3	2.3	2.2	2.2	2.1	2.0	1
13 14	2.8 2.7	2.7 2.7	$\frac{2.7}{2.6}$	2.6 2.5	$\frac{2.5}{2.4}$	$\begin{array}{c c} 2.4 \\ 2.4 \end{array}$	$\frac{2.4}{2.3}$	2.3 2.3	$\frac{2.2}{2.2}$	$\begin{array}{c} 2.2 \\ 2.1 \end{array}$	$\frac{2.1}{2.1}$	$\begin{array}{c} 2.1 \\ 2.0 \end{array}$	$\frac{2.0}{2.0}$	1 1
15	2.7	2.6	2.5	$\frac{2.5}{2.5}$	2.4	2.3	2.3	2.2	$\frac{2.2}{2.1}$	$\frac{2.1}{2.1}$	$\frac{2.1}{2.0}$	$\frac{2.0}{2.0}$	1.9	1
16	2.6	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.1	2.0	2.0	1.9	1.9	1
17 18	$\frac{2.5}{2.5}$	$\begin{array}{c c} 2.5 \\ 2.4 \end{array}$	2. 4 2. 4	2.3 2.3	$\frac{2.3}{2.2}$	$\begin{bmatrix} 2,2\\2,2 \end{bmatrix}$	2. 2 2. 1	$\frac{2.1}{2.1}$	$\begin{array}{c c} 2.1 \\ 2.0 \end{array}$	$\frac{2.0}{2.0}$	$\frac{2.0}{1.9}$	1.9 1.9	$\frac{1.9}{1.8}$	1 1
19	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1
20 21	2. 4 2. 3	2.3 2.3	2.3 2.2	$\frac{2.2}{2.1}$	2. 1 2. 1	2.1	2. 0 2. 0	2.0 2.0	1.9 1.9	1.9 1.9	1.9 1.8	1.8 1.8	1.8 1.7	$\frac{2}{2}$
22	2.3	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.7	1.7	2
$\begin{array}{c} 23 \\ 24 \end{array}$	2. 2 2. 2	2. 2 2. 1	2. 1 2. 1	$\frac{2.1}{2.0}$	2. 0 2. 0	2.0 1.9	1. 9 1. 9	1.9 1.8	1.8 1.8	1.8 1.8	1.8 1.7	1.7 1.7	1.7	$\frac{2}{2}$
$\frac{24}{25}$	$\frac{2.2}{2.1}$	$\frac{2.1}{2.1}$	$\frac{2.1}{2.0}$	$\frac{2.0}{2.0}$	$\frac{2.0}{1.9}$	$\frac{1.9}{1.9}$	$\frac{1.9}{1.8}$	$\frac{1.8}{1.8}$	1.8	$\frac{1.8}{1.7}$	$\frac{1.7}{1.7}$	$\frac{1.7}{1.6}$	$\frac{1.6}{1.6}$	$-\frac{2}{2}$
26	2.1	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.6	2
27 28	2.0	2.0	1.9 1.9	1.9 1.9	1.9 1.8	$\begin{array}{c c} 1.8 \\ 1.8 \end{array}$	1.8 1.7	1.7 1.7	$1.7 \\ 1.7$	$\frac{1.7}{1.6}$	$1.6 \\ 1.6$	1.6 1.6	$\frac{1.6}{1.5}$	$\frac{2}{2}$
29	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	2
30 31	1.9 1.8	1.8 1.8	1.8 1.8	1.8 1.7	1.7 1.7	1.7 1.7	$1.7 \\ 1.6$	1.6 1.6	1.6 1.6	1.6 1.5	1.5	1.5 1.5	1.5 1.5	3
32	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	$1.5 \\ 1.5$	1.5	1. 3	$\begin{vmatrix} 3 \\ 3 \end{vmatrix}$
33	1.8 1.7	1.7 1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	3
$\frac{34}{35}$	1.7	1.7	$\frac{1.7}{1.6}$	$\frac{1.6}{1.6}$	$\frac{1.6}{1.6}$	$\frac{1.6}{1.5}$	$\frac{1.5}{1.5}$	$\frac{1.5}{1.5}$	$\frac{1.5}{1.5}$	$\frac{1.5}{1.4}$	$\frac{1.4}{1.4}$	$\frac{1.4}{1.4}$	$\frac{1.4}{1.4}$	$\frac{3}{3}$
36	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	3
37 38	1.6 1.6	1.6 1.5	$ \begin{array}{c c} 1.6 \\ 1.5 \end{array} $	1.5 1.5	$1.5 \\ 1.5$	1.5 1.5	1.5 1.4	1.4 1.4	1.4	1. 4 1. 4	1. 4 1. 3	1.3 1.3	$\frac{1.3}{1.3}$	3 3
39	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	3
40	1.5 1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.2	4
41 42	1.4	1.4	1.4 1.4	1. 4 1. 4	1.4 1.4	1.4	1.3 1.3	1.3 1.3	1.3 1.3	1.3 1.2	1.3 1.2	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	4 4
43	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	4
44 45	$\frac{1.4}{1.3}$	$\begin{array}{c c} 1.4 \\ \hline 1.3 \end{array}$	$\begin{array}{c c} 1.3 \\ \hline 1.3 \end{array}$	$\frac{1.3}{1.3}$	$\frac{1.3}{1.3}$	$\begin{array}{c c} 1.3 \\ \hline 1.2 \end{array}$	$\begin{array}{c} 1.3 \\ \hline 1.2 \end{array}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.1}$	$\frac{1.2}{1.1}$	$\frac{4}{4}$
46	1.3	1.3	1.3	1.3	1.2	1.2	1. 2	1.2	1.2	1.2	1.1	1.1	1.1	4
47 48	1.3 1.2	$\begin{array}{c c} 1.3 \\ 1.2 \end{array}$	$\begin{bmatrix} 1.2 \\ 1.2 \end{bmatrix}$	$\begin{bmatrix} 1.2 \\ 1.2 \end{bmatrix}$	$\begin{bmatrix} 1.2 \\ 1.2 \end{bmatrix}$	$\begin{bmatrix} 1.2 \\ 1.2 \end{bmatrix}$	$1.2 \\ 1.1$	$1.2 \\ 1.1$	1.1 1.1	1. 1 1. 1	1.1 1.1	1.1	1.1	4 4
49	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1		4
50 51	1. 2 1. 2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1				5
$\frac{51}{52}$	1.1	1.1	1.1	1.1	1.1 1.1	1.1	1.1 1.0	1.1 1.0	1.0					5 5
53	1.1	1.1	1.1	1.1	1.0	1.0	1.0							5
$\frac{54}{55}$	$\frac{1.1}{1.0}$	$\frac{1.0}{1.0}$	$\frac{1.0}{1.0}$	$\frac{1.0}{1.0}$	$\frac{1.0}{1.0}$	1.0								$\frac{5}{5}$
56	1.0	1.0	1.0	1.0	1.0									5
57 58	1.0 1.0	1.0 0.9	1.0											5 5
59	0.9	0.0		•									0.8	5
60												0.8	0.8	6
	250	260	270	280	290	300	310	320	83°	340	350	36°	370	
		Decl	instion	of the se	me nam	e as the	latitude	· lower	transit;	reductio	n subtra	ctive.		

TABLE 26.

ati- ude.	389	390	40°	410	420	430	440	450	46°	it; reduc	480	490	50°	Lat
•		"	"		"	"	"		"	"	"	"	"	-
o	2.5	2.4	2.3	2.3	2.2	2.1	2.0	2.0	1.9	1.8	1.8	1.7	1.7	(
$\frac{1}{2}$	2. 5 2. 4	$\begin{array}{c c} 2.4 \\ 2.3 \end{array}$	2.3 2.3	2.2	$2.1 \\ 2.1$	$\frac{2.1}{2.0}$	$\frac{2.0}{2.0}$	1. 9 1. 9	1.9 1.8	1.8 1.8	1.7 1.7	$1.7 \\ 1.7$	$1.6 \\ 1.6$	
3	2.4	2.3	2.2	2.1	2.1	2.0	1.9	1.9	1.8	1.8	1.7	1.6	1.6	
$\frac{4}{5}$	$\frac{2.3}{2.3}$	$\begin{array}{c} 2.2 \\ \hline 2.2 \end{array}$	$\frac{2.2}{2.1}$	$\frac{2.1}{2.1}$	$\frac{2.0}{2.0}$	$\frac{2.0}{1.9}$	$\frac{1.9}{1.9}$	$\frac{1.8}{1.8}$	$\frac{1.8}{1.8}$	$\frac{1.7}{1.7}$	$\frac{1.7}{1.6}$	$\frac{1.6}{1.6}$	$\frac{1.6}{1.5}$	-
6	2.2	2.2	2.1	2.0	2.0	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.5	l (
7 8	$\begin{array}{c c} 2.2 \\ 2.1 \end{array}$	$\begin{array}{c c} 2.1 \\ 2.1 \end{array}$	2. 0 2. 0	2.0 1.9	1.9 1.9	1.9 1.8	1.8 1.8	1.8 1.7	1.7 1.7	1.6 1.6	1.6 1.6	$1.5 \\ 1.5$	$1.5 \\ 1.5$	
9	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.7	1.6	1.6	1.6	1.5	_1.5	
10 11	$\frac{2.1}{2.0}$	$\begin{array}{c c} 2.0 \\ 2.0 \end{array}$	1. 9 1. 9	1.9 1.8	1.8 1.8	$\frac{1.8}{1.7}$	1.7 1.7	1.7 1.6	1.6 1.6	1.6 1.6	1.5 1.5	$1.5 \\ 1.5$	1. 4 1. 4	1 1
12	2.0	1.9	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.5	1.5	1.4	1.4	1.
13 14	1.9 1.9	$\begin{bmatrix} 1.9 \\ 1.9 \end{bmatrix}$	1.8 1.8	1.8 1.8	1.7 1.7	1.7 1.7	1.6 1.6	$\frac{1.6}{1.6}$	$1.6 \\ 1.5$	$1.5 \\ 1.5$	1.5 1.4	1.4 1.4	1.4 1.4	1 1
15	1.9	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.4	1.4	1.4	1
16 17	1.8	1.8 1.8	$1.7 \\ 1.7$	1.7 1.7	$1.7 \\ 1.6$	1.6	1.6 1.5	1.5 1.5	$1.5 \\ 1.5$	1.4 1.4	1.4 1.4	1.4 1.4	1.3	1
18	1.8 1.8	1.7	1.7	1.6	1.6	$\frac{1.6}{1.6}$	1.5	1.5	1.4	1.4	1.4	1.3	$1.3 \\ 1.3$	1
19	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1
$\frac{20}{21}$	$\frac{1.7}{1.7}$	1.7 1.6	1.6 1.6	1.6 1.6	1.6 1.5	$1.5 \\ 1.5$	1.5 1.5	1. 4 1. 4	1.4 1.4	1.4 1.4	1.3 1.3	1.3 1.3	1.3 1.3	$\frac{2}{2}$
22	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.2	2 2 2
23 24	$\begin{array}{c c} 1.6 \\ 1.6 \end{array}$	$1.6 \\ 1.6$	$1.6 \\ 1.5$	$1.5 \\ 1.5$	$1.5 \\ 1.5$	1.4 1.4	1.4 1.4	1. 4 1. 4	$\frac{1.3}{1.3}$	1.3 1.3	1.3 1.3	$\begin{array}{c} 1.3 \\ 1.2 \end{array}$	1.2 1.2	2
25	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.2	-2
26 27	1.6 1.5	$1.5 \\ 1.5$	1. 5 1. 5	1.5 1.4	1.4 1.4	1.4 1.4	1.4 1.3	$\frac{1.3}{1.3}$	1.3 1.3	1.3 1.2	$1.2 \\ 1.2$	1.2 1.2	1.2 1.2	2 2
28	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.1	2
29 30	$\begin{array}{c c} 1.5\\ \hline 1.5 \end{array}$	$\frac{1.4}{1.4}$	$\frac{1.4}{1.4}$	$\frac{1.4}{1.4}$	$\frac{1.4}{1.3}$	$\frac{1.3}{1.3}$	$\frac{1.3}{1.3}$	$\frac{1.3}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.2}$	$\frac{1.2}{1.1}$	1.1	$\frac{2}{3}$
31	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1	1.1	3
32 33	1.4 1.4	1.4 1.4	$\frac{1.3}{1.3}$	1.3 1.3	1.3 1.3	$1.3 \\ 1.2$	$1.2 \\ 1.2$	$\frac{1.2}{1.2}$	1.2 1.2	1. 2 1. 1	1.1 1.1	1.1 1.1	1. 1 1. 1	3: 3: 3:
34	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	_3
35 36	1.3 1.3	1. 3 1. 3	1. 3 1. 3	1.3	$\frac{1.2}{1.2}$	1.2 1.2	1.2 1.2	$\frac{1.2}{1.1}$	1.1 1.1	1. 1 1. 1	1. 1 1. 1	1.1		3
37	1.3	1.3	1.2	1. 2 1. 2	1.2	1.2	1.2	1.1	1.1	1.1	1.1			3
38 39	$\begin{bmatrix} 1.3 \\ 1.2 \end{bmatrix}$	$\begin{bmatrix} 1.2 \\ 1.2 \end{bmatrix}$	1. 2 1. 2	1. 2 1. 2	$egin{array}{c} 1.2 \ 1.2 \end{array}$	$1.2 \\ 1.1$	1. 1 1. 1	1. 1 1. 1	1.1					3
40	1.2	1.2	1.2	1.2	1.1	1.1	1.1							4
41 42	$1.2 \\ 1.2$	$\begin{bmatrix} 1.2 \\ 1.2 \end{bmatrix}$	$1.2 \\ 1.1$	1.1 1.1	1. 1 1. 1	1.1								4
43	1.2	1.1	1.1	1.1										4
$\frac{44}{45}$	1.1	$\frac{1.1}{1.1}$	1.1											$-\frac{4}{4}$
46	1.1												0.9	4
47 48											0.9	0.9	$0.9 \\ 0.9$	43
49										0.9	0. 9 0. 9	0.9	0.8	4
50 51								0.9	0.9	0. 9 0. 9	0. 9 0. 8	0.8	0. 8 0. 8	5 5
52 53						0-70	0.9	0.9	0.9	0.8	0.8	0.8	0.8	5
54					0.9	0.9	0.9	0.8 0.8	0. 8 0. 8	0.8	0.8	0.8	0.8	55 54
55			0.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	5
56 57		0.8	$\begin{array}{c c} 0.8 \\ 0.8 \end{array}$	0.8	0.8 0.8	0.8 0.8	0.8	0.8	0.8	0.8 0.8	0. 8 0. 7	0.7	0. 7 0. 7	50 57
58 59	0. 8 0. 8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	58
60	0.8	0. 8 0. 8	0.8	0.8 0.8	0.8 0.8	0. 8 0. 7	0.8	0. 7 0. 7	0.7	0. 7 0. 7	0. 7 0. 7	0. 7 0. 7	0. 7 0. 7	59 60
	380	390	400	410	420	430	440	430	460	470	480	490	500	
		Decl	ination	of the sa	menom	o as the	latituda	- 1	1			-41		

Lati-		Dec	lination	of a diff	erent na	me from	the lati	tude; uj	per trai	ısit; red	uction a	dditive.		Lati-
tude.	51°	520	53°	540	550	56°	570	580	590	60°	610	620	680	tude.
0 1 2 3 4	1.6 1.6 1.5 1.5	1.5 1.5 1.5 1.5 1.5	1.5 1.5 1.4 1.4	1. 4 1. 4 1. 4 1. 4 1. 4	1.4 1.4 1.3 1.3	1.3 1.3 1.3 1.3	1.3 1.3 1.3 1.2 1.2	1. 2 1. 2 1. 2 1. 2 1. 2	1. 2 1. 2 1. 2 1. 1 1. 1	1. 1 1. 1 1. 1 1. 1 1. 1	1.1 1.1 1.1 1.1 1.1	1. 0 1. 0 1. 0 1. 0 1. 0	" 1. 0 1. 0 1. 0 1. 0 1. 0 1. 0	0 1 2 3 4
5 6 7 8 9	1.5 1.5 1.4 1.4	1. 4 1. 4 1. 4 1. 4	1. 4 1. 4 1. 3 1. 3	1.3 1.3 1.3 1.3	1.3 1.3 1.3 1.3 1.2	1.3 1.2 1.2 1.2 1.2	1.2 1.2 1.2 1.2 1.2	1.2 1.2 1.1 1.1 1.1	1.1 1.1 1.1 1.1 1.1	1.1 1.1 1.1 1.1 1.0	1. 0 1. 0 1. 0 1. 0 1. 0	1. 0 1. 0 1. 0 1. 0 1. 0	1.0 1.0 0.9 0.9 0.9	5 6 7 8 9
10 11 12 13 14 15	1.4 1.4 1.3 1.3	1.4 1.3 1.3 1.3 1.3	1.3 1.3 1.3 1.3 1.3	1.3 1.3 1.2 1.2 1.2 1.2	1. 2 1. 2 1. 2 1. 2 1. 2 1. 2	1. 2 1. 2 1. 2 1. 2 1. 1	1.1 1.1 1.1 1.1 1.1	1. 1 1. 1 1. 1 1. 1 1. 1	1. 1 1. 1 1. 0 1. 0 1. 0	1.0 1.0 1.0 1.0 1.0 1.0	1. 0 1. 0 1. 0 1. 0 1. 0	1. 0 1. 0 0. 9 0. 9 0. 9	0.9 0.9 0.9 0.9 0.9	10 11 12 13 14 15
16 17 18 19 20	1.3 1.3 1.3 1.2	1.3 1.2 1.2 1.2	1. 2 1. 2 1. 2 1. 2 1. 2	1. 2 1. 2 1. 2 1. 1 1. 1	1.1 1.1 1.1 1.1 1.1	1. 1 1. 1 1. 1 1. 1 1. 1	1.1 1.1 1.1 1.0 1.0	1. 0 1. 0 1. 0 1. 0	1.0 1.0 1.0 1.0	1. 0 1. 0 1. 0 1. 0 0. 9	0.9 0.9 0.9 0.9	0. 9 0. 9 0. 9 0. 9	0.9 0.9 0.9 0.9	16 17 18 19
$ \begin{array}{r} 21 \\ 22 \\ 23 \\ 24 \\ \hline 25 \end{array} $	1.2 1.2 1.2 1.2	$ \begin{array}{c} 1.2 \\ 1.2 \\ 1.2 \\ 1.1 \\ \hline 1.1 \end{array} $	1.2 1.1 1.1 1.1 1.1	1. 1 1. 1 1. 1 1. 1	1. 1 1. 1 1. 1 1. 1 1. 0	1. 1 1. 0 1. 0 1. 0	$ \begin{array}{c} 1.0 \\ 1.0 \\ 1.0 \\ 1.0 \\ \hline 1.0 \end{array} $	1. 0 1. 0 1. 0 1. 0	1.0 1.0 0.9 0.9	0. 9 0. 9 0. 9 0. 9	0. 9 0. 9 0. 9	0.9	0.8	21 22 23 24 25
26 27 28 29 30	1.1 1.1 1.1 1.1	1.1 1.1 1.1 1.1	1. 1 1. 1 1. 1 1. 0 1. 0	1. 1 1. 0 1. 0 1. 0	1. 0 1. 0 1. 0 1. 0	1. 0 1. 0 1. 0	1.0	0.9						26 27 28 29 30
31 32 33 34 35	1.1 1.1 1.1	1.0	1.0								0.8	0.8	0.8 0.7 0.7	31 32 33 34 35
36 37 38 39 40						0.8	0.8	0.8 0.8 0.8	0.8 0.8 0.8	0.8 0.8 0.8 0.8	0.8 0.8 0.8 0.8	$ \begin{array}{c} 0.8 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	$ \begin{array}{c} 0.7 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	$ \begin{array}{r} 36 \\ 37 \\ 38 \\ 39 \\ \hline 40 \end{array} $
41 42 43 44 45	0.9	0.9	0. 9 0. 9 0. 8	0. 9 0. 9 0. 8	0.9 0.8 0.8 0.8	0.8 0.8 0.8 0.8	0.8 0.8 0.8 0.8	0.8 0.8 0.8 0.8	$ \begin{array}{c} 0.8 \\ 0.8 \\ 0.8 \\ 0.7 \end{array} $	0.8 0.8 0.7 0.7	0.7 0.7 0.7 0.7 0.7	$ \begin{array}{c} 0.7 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	$ \begin{array}{c} 0.7 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	41 42 43 44 45
46 47 48 49 50	0.9 0.9 0.8 0.8	$\begin{array}{c} 0.9 \\ 0.8 \\ 0.8 \\ 0.8 \\ \hline 0.8 \end{array}$	0.8 0.8 0.8 0.8	0.8 0.8 0.8 0.8	$ \begin{array}{c} 0.8 \\ 0.8 \\ 0.8 \\ 0.7 \end{array} $	0.8 0.8 0.8	$ \begin{array}{c c} 0.8 \\ 0.8 \\ 0.7 \\ \hline 0.7 \\ \hline 0.7 \end{array} $	$ \begin{array}{c} 0.8 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	0.7 0.7 0.7	0.7 0.7 0.7 0.7 0.7	$ \begin{array}{c} 0.7 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	0.7 0.7 0.7 0.6 0.6	$ \begin{array}{c} 0.7 \\ 0.6 \\ 0.6 \\ \hline 0.6 \end{array} $	46 47 48 49 50
51 52 53 54 55	$\begin{array}{c} 0.8 \\ 0.8 \\ 0.8 \\ 0.8 \\ \hline 0.7 \end{array}$	0.8 0.8 0.8 0.7 0.7	$ \begin{array}{c} 0.8 \\ 0.8 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	$ \begin{array}{c} 0.8 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	0.7 0.7 0.7 0.7 0.7	0.7 0.7 0.7 0.7 0.7	0.7 0.7 0.7 0.7 0.7	$ \begin{array}{c} 0.7 \\ 0.7 \\ 0.7 \\ 0.7 \\ \hline 0.7 \end{array} $	0.7 0.7 0.7 0.6 0.6	$\begin{array}{c} 0.7 \\ 0.7 \\ 0.6 \\ 0.6 \\ \hline 0.6 \end{array}$	0.7 0.6 0.6 0.6	0.6 0.6 0.6 0.6	0.6 0.6 0.6 0.6	51 52 53 54 55
56 57 58 59 60	0.7 0.7 0.7 0.7 0.7	0.7 0.7 0.7 0.7 0.7	0.7 0.7 0.7 0.7 0.7 0.6	0. 7 0. 7 0. 7 0. 6 0. 6	0.7 0.7 0.7 0.6 0.6	0.7 0.7 0.6 0.6 0.6	0. 7 0. 6 0. 6 0. 6 0. 6	0. 6 0. 6 0. 6 0. 6 0. 6	0. 6 0. 6 0. 6 0. 6 0. 6	0. 6 0. 6 0. 6 0. 6 0. 6	0. 6 0. 6 0. 6 0. 6 0. 6	0.6 0.6 0.6 0.6 0.6	0.6 0.6 0.6 0.5 0.5	56 57 58 59 60
	510	52°	53°	54°	550	56°	57°	580	590	60°	61°	620	630	
		De	ecmano	n or the	same na	ine as ti	ne latitu	ue; lowe	r transit	; reduct	ion subt	ractive.		

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TABLE 27.

Reduction to be applied to Altitudes near the Meridian.

Var.					T	ime fron	meridi	an passa	ge.					Var.
1 min. (Table 26.)	m. s. 0 30	m. s. 1 0	m. s. 1 30	m. s. 2 0	m. s. 2 30	m. s. 3 0	m. s. 3 30	m. s. 4 0	m. s. 4 30	m. s. 5 0	m. s. 5 30	m. s. 6 0	m. s. 6 30	(Table 26.)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	, " 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 1	0 0 0 0 0 1 0 1 0 1 0 1 0 2 0 2	0 0 0 1 0 1 0 2 0 2 0 2 0 3 0 3	0 1 0 1 0 2 0 2 0 3 0 4 0 4 0 5	0 1 0 2 0 3 0 4 0 4 0 5 0 6 0 7	0 1 0 3 0 4 0 5 0 6 0 7 0 9 0 10	0 2 0 3 0 5 0 6 0 8 0 10 0 11 0 13	0 2 0 4 0 6 0 8 0 10 0 12 0 14 0 16	0 2 0 5 0 7 0 10 0 12 0 15 0 17 0 20	0 3 0 6 0 9 0 12 0 15 0 18 0 21 0 24	0 4 0 7 0 11 0 14 0 18 0 22 0 25 0 29	0 4 0 8 0 13 0 17 0 21 0 25 0 30 0 34	0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
0.9 1.0 2.0 3.0 4.0 5.0 6.0	0 0 0 0 0 0 0 1 0 1 0 1 0 1	$\begin{array}{cccc} 0 & 1 \\ 0 & 1 \\ 0 & 2 \\ 0 & 3 \\ 0 & 4 \\ 0 & 5 \\ \hline 0 & 6 \\ \end{array}$	0 2 0 2 0 4 0 7 0 9 0 11 0 13	0 4 0 4 0 8 0 12 0 16 0 20 0 24	0 6 0 6 0 12 0 19 0 25 0 31 0 37	0 8 0 9 0 18 0 27 0 36 0 45 0 54	0 11 0 12 0 24 0 37 0 49 1 1 1 13	0 14 0 16 0 32 0 48 1 4 1 20 1 36	0 18 0 20 0 41 1 1 1 21 1 41 2 1	0 22 0 25 0 50 1 15 1 40 2 5 2 30	0 27 0 30 1 0 1 31 2 1 2 31 3 1	0 32 0 36 1 12 1 48 2 24 3 0 3 36	0 38 0 42 1 24 2 6 2 49 3 31 4 13	0.9 1.0 2.0 3.0 4.0 5.0 6.0
7.0 8.0 9.0 10.0 11.0 12.0 13.0	0 2 0 2 0 2 0 3 0 3 0 3	0 7 0 8 0 9 0 10 0 11 0 12 0 13	0 16 0 18 0 20 0 22 0 25 0 27 0 29	0 28 0 32 0 36 0 40 0 44 0 48 0 52	$\begin{array}{c} 0 & 44 \\ 0 & 50 \\ 0 & 56 \\ 1 & 2 \\ \hline 1 & 9 \\ 1 & 15 \\ 1 & 21 \\ \end{array}$	1 3 1 12 1 21 1 30 1 39 1 48 1 57	1 26 1 38 1 50 2 3 2 15 2 27 2 39	1 52 2 8 2 24 2 40 2 56 3 12 3 28	2 22 2 42 3 2 3 23 3 43 4 3 4 23	$ \begin{array}{c} 2 55 \\ 3 20 \\ 3 45 \\ 4 10 \\ \hline 4 35 \\ 5 0 \\ 5 25 \end{array} $	3 32 4 2 4 32 5 2 5 32 6 3 6 33	$\begin{array}{r} 4 & 12 \\ 4 & 48 \\ 5 & 24 \\ 6 & 0 \\ \hline 6 & 36 \\ 7 & 12 \\ 7 & 48 \\ \end{array}$	4 56 5 38 6 20 7 2 7 45 8 27 9 9	7.0 8.0 9.0 10.0 11.0 12.0 13.0
14. 0 15. 0 16. 0 17. 0 18. 0 19. 0 20. 0	0 3 0 4 0 4 0 4 0 5 0 5	0 14 0 15 0 16 0 17 0 18 0 19 0 20	0 31 0 34 0 36 0 38 0 40 0 43 0 45	0 56 1 0 1 4 1 8 1 12 1 16 1 20	1 27 1 34 1 40 1 46 1 52 1 59 2 5	2 6 2 15 2 24 2 33 2 42 2 51 3 0	2 51 3 4 3 16 3 28 3 40 3 53 4 5	3 44 4 0 4 16 4 32 4 48 5 4 5. 20	4 43 5 3 5 24 5 44 6 4 6 25 6 45	5 50 6 15 6 40 7 5 7 30 7 55 8 20	7 4 7 34 8 4 8 34 9 4 9 35 10 5	8 24 9 0 9 36 10 12 10 48 11 24 12 0	9 51 10 34 11 16 11 58 12 40 13 23 14 5	14. 0 15. 0 16. 0 17. 0 18. 0 19. 0 20. 0
21. 0 22. 0 23. 0 24. 0 25. 0 26. 0 27. 0	0 5 0 5 0 6 0 6 0 6 0 6 0 7	0 21 0 22 0 23 0 24 0 25 0 26 0 27	0 47 0 49 0 52 0 54 0 56 0 58 1 1	1 24 1 28 1 32 1 36 1 40 1 44 1 48	2 11 2 17 2 24 2 30 2 36 2 42 2 49	3 9 3 18 3 27 3 36 3 45 3 54 4 3	4 17 4 30 4 42 4 54 5 6 5 18 5 30	5 36 5 52 6 8 6 24 6 40 6 56 7 12	7 5 7 25 7 46 8 6 8 26 8 46 9 7	8 45 9 10 9 35 10 0 10 25 10 50 11 15	10 35 11 5 11 36 12 6 12 36 13 6	12 36 13 12 13 48 14 24 15 0	14 47 15 29 16 12 16 54	21. 0 22. 0 23. 0 24. 0 25. 0 26. 0 27. 0

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TABLE 27.

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Reduction to be applied to Altitudes near the Meridian.

1	Var.					T	ime fron	n meridi	an passa	ge.					Var.
	1 min. (Table 26.)	m. s. 7 0	m. s. 7 30	m. s. 8 0	m. s. 8 30	m. s. 9 0	m. s. 9 30	m. s. 10 0	m. s. 10 30	m. s. 11 0	m. s. 11 30	m. s. 12 0	m. s. 12 30	m. s. 13 0	1 min. (Table 26.)
	26.) 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0	7 0 7 0 10 5 0 10 0 10 0 20 0 24 0 29 0 34 0 39 0 44 0 49 1 38 2 27 3 16 3 2 7 21 5 4 5 4 5 4 5 4 5 4 5 8 3 8 3 8 3 8 3 8 3 8 3 8 3 8 3	7 80 7 80 0 6 0 11 0 17 0 23 0 28 0 34 0 39 0 45 1 52 2 49 3 45 4 41 5 37 6 34 7 30 8 26 9 9 22 10 19	8 0 7 " 0 6 0 13 0 19 0 26 0 32 0 38 0 45 0 51 0 57 1 4 2 8 3 12 4 16 5 20 6 24 7 28 8 32 9 36 10 40 11 44	8 30 7 " 0 7 0 14 0 22 0 29 0 36 0 43 0 51 0 58 1 5 1 12 2 24 3 37 4 49 6 1 7 14 8 26 9 38 10 50 12 2 13 15	9 0 7 " 0 8 0 16 0 24 0 32 0 40 0 57 1 15 1 13 1 21 2 42 4 3 5 24 6 45 8 6 9 27 10 48 12 9 12 9 13 30 14 51	9 30 7	10 0 7 " 0 10 0 20 0 30 0 40 0 50 1 10 1 20 1 3 20 5 0 6 40 10 0 11 40 13 20 10 0 11 40 13 20 15 0 16 40 18 20	0 10 30 7 " 0 11 0 22 0 33 0 44 0 55 1 6 1 17 1 28 1 50 3 40 5 31 7 21 9 11 11 1 12 52 14 42 16 32 18 22 20 13	11 0 7 " 0 12 0 24 0 36 0 48 1 0 5 1 13 1 25 1 37 1 4 2 6 3 8 4 10 5 12 6 14 7 16 8 18 9 20 10 22 11	11 30 7	0 14 0 29 0 43 0 58 1 12 1 26 1 41 1 55 2 10 2 24 4 48 7 12 9 36 12 0 14 24 16 48 19 12 21 36 24 0 26 24	12 80 7 7 80 16 0 31 0 47 1 2 1 18 1 34 2 5 2 21 2 36 5 12 7 49 10 25 13 1 15 37 18 14 20 50 23 26 26 2 28 39		26.) " 0.1 0.2 0.3 0.4 0.5 0.9 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 11.0
	12. 0 13. 0 14. 0 15. 0	9 48 10 37 11 26 12 15	11 15 12 11 13 7 14 4	12 48 13 52 14 56 16 0	14 27 15 39 16 51 18 14	16 12 17 33 18 54 20 15	18 3 19 33 21 3 22 34	$\begin{array}{ccc} 20 & 0 \\ 21 & 40 \\ 23 & 20 \\ 25 & 0 \end{array}$	22 3 23 53 25 43 27 34	24 12 26 13 28 14	26 27 28 39	28 48			12. 0 13. 0 14. 0 15. 0
	16. 0 17. 0 18. 0 19. 0 20. 0	13 4 13 53 14 42 15 31 16 20	15 0 15 56 16 52 17 49 18 45	17 4 18 8 19 12 20 16	19 16 20 28 21 40	21 36 22 57 24 18	24 4 25 34	26 40							16. 0 17. 0 18. 0 19. 0 20. 0
-	21.0	17 9													21.0

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TABLE 27.

Reduction to be applied to Altitudes near the Meridian

Var.					Т	ime from	n merid	ian passe	ige.					Var.
1 min. (Table 26.)	m. s. 13 30	m. s. 14 0	m. s. 14 30	m. s. 15 0	m. s. 15 30	m. s. 16 0	m. s. 16 30	m. s. 17 0	m. s. 17 30	m. s. 18 0	m. s. 18 30	m. s. 19 0	m. s. 19 30	1 min. (Table 26.)
0.1 0.2 0.3 0.4	0 18 0 36 0 55 1 13	0 20 0 39 0 59 1 18	0 21 0 42 1 3 1 24	0 22 0 45 1 7 1 30	0 24 0 48 1 12 1 36	0 26 0 51 1 17 1 42	0 27 0 54 1 22 1 49	0 29 0 58 1 27 1 56	0 31 1 1 1 32 2 2	0 32 1 5 1 37 2 10	0 34 1 8 1 43 2 17	0 36 1 12 1 48 2 24	0 38 1 16 1 54 2 32	0.1 0.2 0.3 0.4
0. 5 0. 6 0. 7 0. 8 0. 9	1 31 1 49 2 8 2 26 2 44 3 2	$ \begin{array}{r} 1 \ 38 \\ 1 \ 58 \\ 2 \ 17 \\ 2 \ 37 \\ 2 \ 56 \\ \hline 3 \ 16 \end{array} $	1 45 2 6 2 27 2 48 3 9 3 30	1 52 2 15 2 37 3 0 3 22 3 45	$ \begin{array}{r} 2 & 0 \\ 2 & 24 \\ 2 & 48 \\ 3 & 12 \\ 3 & 36 \\ \hline 4 & 0 \end{array} $	2 8 2 34 2 59 3 25 3 50 4 16	2 16 2 43 3 11 3 38 4 5 4 32	2 24 2 53 3 22 3 51 4 20 4 49	2 33 3 4 3 34 4 5 4 36 5 6	2 42 3 14 3 47 4 19 4 52 5 24	2 51 3 25 4 0 4 34 5 8 5 42	3 1 3 37 4 13 4 49 5 25 6 1	$ \begin{array}{r} 3 10 \\ 3 48 \\ 4 26 \\ 5 4 \\ 5 42 \\ \hline 6 20 \end{array} $	0.5 0.6 0.7 0.8 0.9
2. 0 3. 0 4. 0 5. 0	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	6 32 9 48 13 14 16 20 19 36	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	7 30 11 15 15 0 18 45 22 30	$ \begin{array}{c cccc} & 1 & 0 & 0 \\ & 8 & 0 & 0 \\ & 12 & 1 & 0 \\ & 16 & 1 & 0 \\ & 20 & 1 & 0 \\ \hline & 24 & 1 & 0 \\ \end{array} $	8 32 12 48 17 4 21 20 25 36	9 4 13 38 18 9 22 41 27 13	9 38 14 27 19 16 24 5	10 12 15 19 20 25 25 31	10 48 16 12 21 36 27 0	11 24 17 7 22 49 28 31	6 1 12 2 18 3 24 4	6 20 12 40 19 1 25 21	1. 0 2. 0 3. 0 4. 0 5. 0
7. 0 8. 0 9. 0	21 16 24 18 27 20	22 52 26 8	24 32 28 2	26 15	28 1					-			-	7. 0 8. 0 9. 0
Var. 1 min.					Т	ime from	n meridi	an passe	ige.					Var. 1 min.
(Table 26.)	m. s. 20 0	m. s. 20 30	m. s. 21 0	m. s. 21 30	m. s. 22 0	m. s. 22 30	m. s. 23 0	m. s. 23 30	m. s. 24 0	m. s. 24 30	m. s. 25 0	m. s. 25 30	m. s. 26 0	(Table 26.)
0.1 0.2 0.3 0.4	0 40 1 20 2 0 2 40 3 20	0 42 1 24 2 6 2 48 3 30	0 44 1 28 2 12 2 56 3 41	0 46 1 32 2 19 3 5 3 51	0 48 1 37 2 25 3 14 4 2	0 51 1 41 2 32 3 22 4 13	0 53 1 46 2 39 3 32 4 24	0 55 1 50 2 46 3 41 4 36	0 58 1 55 2 53 3 50 4 48	1 0 2 0 3 0 4 0 5 0	1 2 2 5 3 7 4 10 5 12	1 6 2 10 3 15 4 20 5 25	1 8 2 15 3 23 4 30 5 38	0. 1 0. 2 0. 3 0. 4
0.6 0.7 0.8 0.9	$\begin{array}{r} 4 & 0 \\ 4 & 40 \\ 5 & 20 \\ 6 & 0 \\ \hline 6 & 40 \\ \end{array}$	$ \begin{array}{r} 4 12 \\ 4 54 \\ 5 36 \\ 6 18 \\ \hline 7 0 \end{array} $	$\begin{array}{r} 4\ 25 \\ 5\ 9 \\ 5\ 53 \\ 6\ 37 \\ \hline 7\ 21 \end{array}$	$ \begin{array}{r} 4 \ 37 \\ 5 \ 24 \\ 6 \ 10 \\ 6 \ 56 \\ \hline 7 \ 42 \end{array} $	4 50 5 39 6 27 7 16 8 4	$ \begin{array}{r} 5 & 4 \\ 5 & 54 \\ 6 & 45 \\ 7 & 36 \\ \hline 8 & 26 \end{array} $	5 17 6 10 7 3 7 56 8 49	5 31 6 27 7 22 8 17 9 12	5 46 6 43 7 41 8 38 9 36	6 0 7 0 8 0 9 0 10 0	6 15 7 17 8 20 9 22 10 25	6 30 7 35 8 40 9 45 10 50	6 46 7 53 9 1 10 8 11 16	0.6 0.7 0.8 0.9
2. 0 3. 0 4. 0	13 20 20 0 26 40	14 0 21 0 28 1	14 42 22 3 29 24	15 24 23 7	16 8 24 12	16 52 25 19	17 38 26 27	18 24 27 37	19 12 28 48	20 0 30 0	20 50	21 40	22 32	1. 0 2. 0 3. 0 4. 0

Note.—The pages formerly occupied with Tables 28A, 28B, 28C, and 28D have been dropped, and consecutive page numbering is thereby broken.

Conversion Tables for Nautical and Statute Miles.

Nautical miles into statute miles.

1 nautical mile or knot=6,080.20 feet.
1 statute mile =5,280 feet.

Statute miles into nautical miles.

1 statute mile = 5,280 feet

	1 statute mile	=5,280 feet		1	nautical mile or l	knot = 6,080.201	eet.
Nautical miles.	Statute miles.	Nautical miles.	Statute miles.	Statute miles.	Nautical miles.	Statute miles.	Nautical miles.
1	1.15	51	58.729	1	0.87	51	44. 288
$\hat{f 2}$	2.30	52	59.881	$\overline{2}$	1.74	52	45. 156
3	3.45	53	61.032	3	2.61	53	46.025
$\frac{1}{3}$	4.61	54	62. 184	4	3.47	54	46.893
5	5.76	55	63, 335	5 1	4.34	55	47.762
ő	6. 91	56	64.487	6	5. 21	56	48. 630
7	8, 06	57	65, 639	7	6.08	57	49, 498
8	9.21	58	66.790	8	6.95	58	50.367
9	10.36	59	67.942	9	7.82	59	51.235
10	11.52	60	69. 093	10	8.68	60	52.104
11	12.667	61	70. 245	11	9. 552	61	52.972
12	13.819	62	71.396	12	10.421	62	53.840
13	14.970	63	72.548	13	11. 289	63	54.709
14	16. 122	64	73.699	14	12. 158	64	55. 577
15	17. 273	65	74.851	15	13.026 13.894	65 66	56. 445 57. 314
16	18. 425	66	76.003	16			
17	19.576	67	77. 154	17 18	14.763 15.631	67 68	58. 182 59. 051
$\begin{array}{c} 18 \\ 19 \end{array}$	20.728 21.880	68	78. 306 79. 457	18	16. 499	69	59. 919
20	23. 031	69 70	80. 609	20	17. 368	70	60. 787
$\frac{20}{21}$	24, 183	$\left \frac{70}{71} \right $	81.760	$\frac{20}{21}$	18. 236	71	61. 656
$\frac{21}{22}$	25.334	72	82.912	22	19. 105	72	62, 524
23	26. 486	73	84. 063	23	19. 973	73	63. 393
24	• 27.637	74	85. 215	24	20. 841	74	64. 261
25	28. 789	75	86.366	25	21.710	75	65. 129
26	29, 940	76	87. 518	26	22, 578	76	65. 998
27	31.092	77	88.670	$\frac{1}{27}$	23. 447	77	66.866
28	32, 243	78	89, 821	28	24. 315	78	67.735
29	33. 395	79	90.973	29	25. 183	79	68.603
30	34. 547	80	92.124	30	26.052	80	69.471
31	35.698	81	93. 276	31	26.920	81	70. 340
32	36.850	82	94.427	32	27. 789	82	71. 208
33	38.001	83	95. 579	33	28. 657	83	72.077
34	39.153	84	96. 730	34	29. 525	84	72.945
35	40. 304	85	97. 882	35	30.394	85	73.813
36	41.456	86	99.034	36	31. 262	_ 86	74. 682
37	42.607	87	100.185	37	32. 131	87	75.550
38 39	43.759 44.911	88	101. 337	38 39	32. 999 33. 867	88 89	76.419 77.287
39 40	46. 062	89 90	102. 488 103. 640	40	33. 867	90	78. 155
41	47. 214	91	104.791	41	35. 604	91	79, 024
42	48.365	92	105. 942	42	36. 473	92	79. 892
43	49. 517	93	107. 094	43	37. 341	93	80.760
44	50. 668	94	108. 246	44	38. 209	94	81. 629
45	51. 820	95	109. 397	45	39. 078	95	82. 497
46	52. 971	96	110. 549	46	39. 946	96	83. 366
47	54. 123	97	111. 701	47	40. 814	97	84. 234
48	55. 275	98	112. 852	48	41. 683	98	85. 102
49	56. 426	99	114. 004	49	42. 551	99	85. 971
50	57. 578	100	115. 155	50	43. 420	100	86. 839

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TABLE 30.

Conversion Tables for Metric and English Linear Measure.

Metric to English.

Meters.	Feet	•	Yard	S.		Statut	e miles	3.	Nautice	al mile	8.
1 2 3 4 5 6 7 8 9	3. 280 6. 561 9. 842 13. 123 16. 404 19. 685 22. 965 26. 246 29. 527	833 3 666 7 500 0 333 3 166 7 000 0 833 3 666 7 500 0	1. 093 2. 187 3. 280 4. 374 5. 468 6. 561 7. 655 8. 748 9. 842	611 222 833 444 055 666 277 888 500	1 2 3 4 6 7 8 9 0	0.000 .001 .001 .002 .003 .003 .004 .004	621 242 864 485 106 728 349 970 592	369 738 106 475 844 213 582 950 319	0.000 .001 .001 .002 .002 .003 .003 .004	539 079 618 158 697 237 777 316 856	593 185 778 370 963 556 148 741 333

English to metric.

No.	Feet to meters.	Yards to meters.	Statute miles to meters.	Nautical miles to meters
1	0.304 800 6	0. 914 401 8 1. 828 803 7 2. 743 205 5 3. 657 607 3	1, 609. 35	1, 853. 25
2	0.609 601 2		3, 218. 70	3, 706. 50
3	0.914 401 8		4, 828. 05	5, 559. 75
4	1.219 202 4		6, 437. 40	7, 413. 00
5	1. 524 003 0	4. 572 009 1	8, 046, 75	9, 266. 25
6	1. 828 803 7	5. 486 411 0	9, 656, 10	11, 119. 50
7	2. 133 604 3	6. 400 812 8	11, 265, 45	12, 972. 75
8	2. 438 404 9	7. 315 214 6	12, 874, 80	14, 826. 00
9	2. 743 205 5	8. 229 616 5	14, 484, 15	16, 679. 2 5

Conversion Tables for Thermometer Scales.

 $[\textbf{F}^o = \textbf{Fahrenheit temperature}; \ C^o = \textbf{Centigrade temperature}; \ R^o = \textbf{R\'eaumur temperature.}] \ .$

Eq		•		nhr., Cent.	, Réau										
	C	Ro=4 Co= 0 =4 Ro=	4 (F°. 5 (F°.	-32°). -32°).											
F°.	C°.	R°.	F°.	Co:	R°.				•						
1 2 3 4	-17. 2 16. 7 16. 1 15. 6	-13.8 13.3 12.9 12.4	51 52 53 54	+10.6 11.1 11.7 12.2	+8.4 8.9 9.3 9.8		Equi	valent	temperat		Centigra C°+32°.	vde an	d Fahre	nheit.	
5 6	15. 0 14. 4	12. 0 11. 6	55 56	12.8 13.3	10. 2 10. 7	Co.	F°.	C°.	Fo.	C°.	F°.	C°.	F°.	C°.	Fo.
7 8 9 10 11 12 13 14 15 16 17 18	13. 9 13. 3 12. 8 12. 2 11. 7 11. 1 10. 6 10. 0 9. 4 8. 9 8. 3 7. 8	11. 1 10. 7 10. 2 9. 8 9. 3 8. 9 8. 4 8. 0 7. 6 7. 1 6. 7	57 58 59 60 61 62 63 64 65 66 67 68	13. 9 14. 4 15. 0 15. 6 16. 1 16. 7 17. 2 17. 8 18. 3 18. 9 19. 4 20. 0	11. 1 11. 6 12. 0 12. 4 12. 9 13. 3 13. 8 14. 2 14. 7 15. 1 15. 6 16. 0	-10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1	14. 0 15. 8 17. 6 19. 4 21. 2 23. 0 24. 8 26. 6 28. 4 30. 2	0 1 2 3 4 5 6 7 8 9	32. 0 33. 8 35. 6 37. 4 39. 2 41. 0 42. 8 44. 6 46. 4 48. 2	10 11 12 13 14 15 16 17 18 19	50. 0 51. 8 53. 6 55. 4 57. 2 59. 0 60. 8 62. 6 64. 4 66. 2	20 21 22 23 24 25 26 27 28 29	68. 0 69. 8 71. 6 73. 4 75. 2 77. 0 78. 8 80. 6 82. 4 84. 2	30 31 32 33 34 35 36 37 38 39	86. 0 87. 8 89. 6 91. 4 93. 2 95. 0 96. 8 98. 6 100. 4 102. 2
19 20 21 22 23 24 25 26 27 28 29	7. 2 6. 7 6. 1 5. 6 5. 0 4. 4 3. 9 3. 3 2. 8 2. 2	5.8 5.3 4.9 4.4 4.0 3.6 3.1 2.7 2.2 1.8	69 70 71 72 73 74 75 76 77 78	20. 6 21. 1 21. 7 22. 2 22. 8 23. 3 23. 9 24. 4 25. 0 25. 6 26. 1	16. 4 16. 9 17. 3 17. 8 18. 2 18. 7 19. 1 19. 6 20. 0 20. 4 20. 9		Equ	ivalen	t tempera		-Réaum: R°+32°		l Fahres	iheit.	
30 31	-0.6	-0.9	80 81	$ \begin{array}{c c} 26.7 \\ 27.2 \end{array} $	21. 3 21. 8	R°.	F	°.	Ro.	F°.	R°.	F	۰.	R°.	F°.
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	+ 0.6 1.1 1.2 2.2 8.3 3.9 4.5 6.1 7.2 7.8 8.3 8.9 4.10 0	1.8 2.2 2.7 3.1 4.9 5.8 6.2 7.1 4.9	82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	27. 8 28. 3 28. 9 29. 4 30. 0 30. 6 31. 1 31. 7 32. 2 32. 8 33. 3 33. 9 34. 4 35. 6 36. 1 36. 7 37. 2 +37. 8	22. 2 22. 7 23. 1 23. 6 24. 0 24. 4 24. 9 25. 3 26. 2 26. 7 27. 1 27. 6 28. 9 29. 3 29. 8 + 30. 2	-10 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1	11. 12. 13. 14. 16. 18. 18. 20. 21. 22. 23. 24. 25. 26. 27. 28. 28. 29. 20. 20. 20. 20. 20. 20. 20. 20	9. 5 1. 8 4. 0 3. 2 3. 3. 5 9. 8 3. 0 5. 2 7. 5 9. 8	0 1 2 3 4 5 6 7 8 9	32. 0 34. 2 36. 5 38. 8 41. 0 43. 2 45. 5 50. 0 52. 2	11 12 13 14 15 16 17	5 5 6 6 6 7 7	4. 5 6. 8 9. 0 1. 2 3. 5 5. 8 8. 0 2. 2 4. 8	20 21 22 23 24 25 26 27 28 29	77. 0 79. 2 81. 5 83. 8 86. 0 88. 2 90. 5 92. 8 95. 0 97. 2

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TABLE 32.

To obtain the True Force and Direction of the Wind from its Apparent Force and Direction on a Moving Vessel.

	Moving Vessel.	
True force, Beaufort scale.	0,00±0,45±0,00€00€00€00€00€00€00€00€00€00€00€00€00	- ************************************
True direction, points off the bow.	16 16 16 16 16 16 16 16 16 16 16 16 16 1	999999999999999999999999999999999999999
True force, Beaufort scale.	0000040400000000000000000000000000000	- x x x x x x x x x x x x x x x x x x x
True direction, points off the bow.	16 15 15 15 15 16 16 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	
True force, Beaufort scale.	986846466664678	- 888888888888888888888888888888888888
True direction, points off the bow.	55555555555555555555555555555555555555	898484484484444444444444444444444444444
True force, Beaufort scale.	0000040466666666	
True direction, points off the bow.	29922242244244	<u> </u>
True force, Beaufort scale.	000400404000000000000000000000000000000	
True direction, points off the bow.	2552445444544	<u> </u>
True force, Beaufort scale.	0100400400400000000	0-8-8888888888888888888888888888888888
True direction, points off the bow.	666446844884884	
True force, Beaufort scale.	01004 01 470047047067067	0
True direction, points off the bow.	25524458842883338	11 12 13 14 15 15 15 15 15 15 15
True force, Beaufort scale.	010040104004000000	000
True direction, points off the bow.		
True force, Beaufort scale.	0100401004004004000	252 252 253 253 253 253 253 253 253 253
True direction, points off the bow.	2222442222122222	911291091091099
True force, Beaufort scale.		22221111000 88888777776666573
True direction, points off the bow.	25222212222222	<u></u>
True force, Beaufort scale.		
True direction, points off the bow.	2222440222912981	860080000000000000000000000000000000000
True force, Beaufort scale.		4488888 6660101111111111111111111111111111
True direction, points off the bow.	55554455558 051 0 0 0	
True force, Beaufort scale.		4888444677776887 6881111
True direction, points off the bow.	44444444444444444444444444444444444444	\$C\$\$C\$
True force, Beaufort scale.		88891 888 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
True direction, points off the bow.	8888888989	C C C 4 C C 4 C C 4 4 C 4 4 C 4 4 5 4 4 4 4
True force, Beaufort scale.		8000 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
True direction, points off the bow.	81998447774481496	© 10 € 10 € 10 € 10 € 10 € 10 € 10 € 10
True force, Beaufort scale.		8214826488966879
True direction, points off the bow.	81 81 81 81 81 81 81 81 81 81 81 81 81 8	000000000000000000000000000000000000000
True force, Beaufort scale.		820482648964879 8870881110
True direction, points off the bow.	16 16 16 16 16 16 00 00	000000000000000000000000000000000000000
Speed of vessel, knots.	822682268226822	856856856856856856856856
Appar- ent ent of the wind (foru- fort scale).	9 H 8 H	8 8 8 11 11 11 11 11 11 11 11
	Speed of yessel, knots. True direction, points off the bow. True force, Beaufort scale. True direction, points off the bow. True force, Beaufort scale.	Signification of the bow. True direction, points off the bow. True direction, point

TABLE 33.

Distance by Vertical Angle.

												by ver	-					
	150	, 0	13 52	3 4 42 3 32	2 49 2 21	2 01 1 46	1 34	112	1 05	000	0 47 0 45	0000	3 2 2 2	8888	00000	0 21 0 20 0 19 0 18 0 18		
	140	0	12 58	4 23 3 18	2 38 2 12	1 53	1.28	8112	1 01 0 57	0 53 0 49 0 47	0 44	0000	0 33	2838	0000	000013		
	130	• •	88	3 04	2 27 2 02	1 45	1 22	1 0 1	0 53	0 49 0 46 0 43	0 41	0000	0 29	2888	88888	0017		
-	120	0	11 10	3 46 2 49	2 16	1 33	1 15	228	0 22	000 444	0 38	0 33 0 33 0 30 0 30	0 27	8828	0 23 0 19 0 19 0 18	0 0 15 0 0 15 0 0 15 0 14 0 14		
-	110	0	10 15	827	2 04 1 44	1 1 2 2 3	1 00	0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0 0 48	0 0 0 0 39 37	0 33	0000	0 22	4882	0 21 0 19 0 18 0 17 0 16	00000	-	
-	100	0	0 4 0 4 0 6	3 08 2 21	1 53	121	1 03	0 57	44	0 0 0 32	000	8288	0 23	1288	0 19 0 15 0 16	0013		
-	96	10	8 4 8 53	2 2 2 2 2 2 2 4 4 2 2	1 47	1 17	1 00	244	48	000	0 0 30	0000	0 21	0000	0 15	00000		
-	06															000000		
-	86															00000	-	
-	08	0	2 30	1 53	1 30	1 05	0 20	448	000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00 82	8828	0 18	0017	0 0 0 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0 11		
-	75														412222			
-	02														00000			
	65											0 0 18 0 17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
	09	0	2 38	112	1 08	0 48	38.0	# E 8	0 28	8228	0 19 0 18	0 15 0 15 0 15	0 14	222 2000	0 10			
	92											0 15 0 14 0 14						
	90											0 14 0 13 0 13						
	97											0 13 0 12 0 12 0 12						
	40											0000						
Die.	knots.		0.1	1004	0.5	51.0	0.00	0.1.0	4 65 4	1.5	- 00 0	0.1.2.8	2.5	01.00	0.64.60	0.014.080		

TABLE 33.

Distance by Vertical Angle.

#0100 m000 m 1010 0 m 0 m 0 m 0 m 10 m 1	
82272 88374 8 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 40
00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	22
000	3 01
0 6 4 4 8 8 8 4 4 1 8 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	288
092, 0 8 2 8 8 8 8 8 1 10 0 0 0 0 0 0 0 0 0 0 4 4 4 4 4 4 4	2 16
000	28
9	7 42
。	9 .
Heights in feet. Heights in feet. 11 Heights in feet. 12 10 10 10 10 10 10 10	118
90 0 8888 1 10 887 1 10 888 4 4 8 8 8 8 8 4 4 8 8 8 8 8 1 10 8 8 8 8 4 4 8 8 8 8 8 8 8 8 8 8 8 8 8	1 08
00 0 3351 - 2362 - 2	0 92
004 0 851 0 852 0 85	0 45
000 000 000 000 000 000 000 000	25.0
0 8 0 0 4 8 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3
001 0 12 8 2 8 2 3 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 2	13. 0
00 00 00 <td></td>	
00000000000000000000000000000000000000	
160 140 140 140 140 140 140 140 14	0 18
180 1 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0

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For finding the distance of an object by an angle, measured from an elevated position, between the object and the horizon beyond.

Dist.,			н	eight of t	ne Eye A	bove the	Level of the	ne sea, m	reet.			Dist.,
yards.	20	30	40	50	60	70	80	90	100	110	120	yards.
	0 /	0 /	0 ,	0 /	0 /	0 /	0 /	0 /	0 ,	0 /	0 /	
100	3 44	5 37	7 29	9 21	11 11	13 00	14 47	16 34	18 16	19 58	21 37	100
200	1 50	2 46	3 43	4 39	5 35 3 41	6 31	7 27 4 56	8 23 5 33	9 18 6 11	10 13 6 48	11 08	200
300 400	$egin{array}{c c} 1 & 12 \\ \hline & 52 \end{array}$	1 49 1 21	$\begin{array}{ccc} 2 & 26 \\ 1 & 48 \end{array}$	3 04 2 16	3 41 2 44	4 19 3 12	3 40	4 08	4 36	6 48 5 04	7 25 5 32	300 400
500	41	1 03	1 25	1 48	2 10	2 32	2 54	3 17	3 39	4 01	4 24	500
600	34	52	1 10	1 29	1 47	2 05	2 24	2 42	3 01	3 20	3 38	60
700 800	28 24	44 38	1 01 51	1 15 1 05	1 31 1 18	$\begin{array}{c} 1 & 46 \\ 1 & 32 \end{array}$	2 01 1 46	2 18 2 00	$\begin{array}{c c} 2 & 34 \\ 2 & 13 \end{array}$	2 50 2 27	3 05 2 41	.700 800
900	21	33	45	57	1 09	1 22	1 33	1 45	1 57	2 10	2 22	90
1,000	18	29	40	50	1 01	1 12	1 23	1 34	1 45	1 56	2 07	1,00
1,100	16	26	35	45	55	1 05	1 15	1 24	1 34	1 44	1 54	1, 10
1,200	15 13	$\frac{23}{21}$	32 29	41 37	50 45	59 53	$\begin{array}{cccc} 1 & 08 \\ 1 & 02 \end{array}$	1 17 1 10	1 26 1 18	$\begin{array}{c c} 1 & 35 \\ 1 & 27 \end{array}$	1 44 1 35	1, 200 1, 300
1,300 1,400	13	19	29	34	41	49	57	1 04	1 12	1 20	1 27	1, 30
1,500	11	18	24	31	38	45	52	59	1 07	1 14	1 21	1,50
1,600	10	16	22	29	35	42	48	55	1 02	1 08	1 15	1,60
1,700		15	21	27	33	39	45 42	51	58	1 04	1 10 1 06	1,70
1,800 1,900		14 13	19 18	$\begin{array}{c} 25 \\ 23 \end{array}$	31 29	36 34	39	· 48 45	54 50	1 00 56	1 00	1,800 1,900
2,000		12	17	$\frac{23}{22}$	27	32	37	42	47	53	58	2,00
2, 100		11	-16	20	25	30	35	40	45	50	55	2, 10
2, 200		10	15	19	24	28	33	38	42	47	52	2, 20
2, 300 2, 400			14 13	18 17	$\begin{array}{c} 22 \\ 21 \end{array}$	27 25	$\begin{array}{c} 31 \\ 29 \end{array}$	36 34	40 38	45 42	49 47	2, 30 2, 40
2,500			12	16	20	24	28	32	36	40	44	2,50
2,600			11	15	19	23	26	30	34	38	42	2,60
2,700		•	11	14	18	22	25	29	33	36	40	2,70
2,800 2,900			10	14 13	17 16	20 19	$\begin{array}{c} 24 \\ 23 \end{array}$	28 26	31 30	35 33	38 37	2, 80 2, 90
3,000				12	15	19	22	25	28	32	35	3,00
3, 100				12	15	18	21	24	27	30	34	3, 10
3, 200				11	14	17	20	23	26	29	32 31	3, 20 3, 30
3, 300 3, 400				10	13 13	16 15	19 18	$\begin{array}{c c} 22 \\ 21 \end{array}$	25 24	28 27	30	3,40
3,500					12	15	17	20	23	26	29	3,50
3,600					12	14	17	19	22	25	27	3,60
3,700					11 11	13 13	16 15	19 18	$\frac{21}{20}$	24 23	26 25	3,70
3, 800 3, 900					10	12	15	17	20	23	25	3, 90
4,000					10	12	14	16	19	21	24	4,00
4, 100						11	14	16	18	20	23	4, 10
4, 200						11 10	13 13	15 15	17 17	20 19	$\begin{array}{c} 22 \\ 21 \end{array}$	4, 20 4, 30
4, 300						10	13	15	16	19	21	4, 40
4, 500							12	14	16	18	20	4,50
4,600							11	13	15	17	19	4,60
4,700							11	13	15	17	19	4,70
4,800 4,900							10	12 12	14	16 15	18 17	4,80
5,000								11	13	15	17	5,000

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TABLE 35.

Speed in knots per hour developed by a vessel traversing a measured nautical mile in any given number of minutes and seconds.

						Number o							1
Sec.	1	2	3	4	5	6	7	8	9	10	11	12	Sec.
_	Knots.	Knots.	Knots.	Knots.	Knots.	Knots.	Knots.	Knots. 7, 500	Knots. 6.666	Knots. 6. 000	Knots, 5, 455	Knots. 5. 000	0
$\begin{array}{c} 0 \\ 1 \end{array}$	60.000 59.016	30.000 29.752	20.000 19.890	15.000 14.938	$\begin{vmatrix} 12,000 \\ 11,960 \end{vmatrix}$	$\begin{vmatrix} 10.000 \\ 9.972 \end{vmatrix}$	8.571	7. 484	6.654	5.990	5. 446	4. 993	1
2	58. 065	29.508	19. 780	14.876	11.920	9.944	8.530	7.468	6.642	5.980	5.438	4.986	2
3	57, 143	29. 268	19. 672	14. 815	11.880	9, 917	8. 510	7. 453	6. 629	5. 970	5. 429	4. 979	3
$\frac{4}{5}$	56. 250 55. 385	29.,032 28. 800	$\frac{19.565}{19.460}$	14. 754 14. 694	$\frac{11.841}{11.803}$	9.890 9.863	8. 490 8. 470	$\frac{7.438}{7.422}$	$\frac{6.617}{6.605}$	$\frac{5.960}{5.950}$	$\frac{5.421}{5.413}$	4.972	$-\frac{4}{5}$
6	54, 545	$\frac{28.500}{28.571}$	19. 355	14. 634	11. 764	9. 836	8. 450	7. 407	6.593	5.940	5. 405	4. 958	6
7	53. 731	28. 346	19. 251	14.575	11. 726	9. 809	8.430	7. 392	6.581	5. 930	5. 397	4. 951	7
8	52.941 52.174	28. 125 27. 907	19.149 19.048	$\begin{vmatrix} 14.516 \\ 14.458 \end{vmatrix}$	11. 688 11. 650	9.783	8.411	7.377	6.569	5. 921 5. 911	5. 389 5. 381	4. 945	8 9
$\frac{3}{10}$	$\frac{52.174}{51.429}$	$\frac{27.697}{27.692}$	$\frac{13.043}{18.947}$	$\frac{14.400}{14.400}$	$\frac{11.600}{11.613}$	$\frac{-0.700}{9.729}$	8.372	7.346	6.545	5. 902	5.373	4.932	10
11	50.704	27.481	18.848	14. 342	11.575	9.703	8.353	7. 331	6.533	5.892	5.365	4. 924	11
12	50.000	27. 273 27. 068	18. 750	14. 286 14. 229	11.538 11.501	9.677 9.651	8.334 8.315	7. 317	6.521	5.882 5.872	5. 357	4. 918	12 13
13 14	49. 315 48. 649	26.866	$\begin{vmatrix} 18.652 \\ 18.556 \end{vmatrix}$	14. 223	11. 465	9. 625	8. 295	7. 287	6.498	5. 863	5.341	4. 904	14
15	48.000	26, 667	18.461	14.118	11.428	9.600	8.276	7.272	6.486	5.853	5. 333	4.897	15
16	47. 368	26. 471	18. 367	14.063	11. 392	9.574	8. 257	7. 258	6.474	5.844	5.325	4. 891	16
17 18	46. 753 46. 154	26. 277 26. 087	18. 274 18. 182	14. 008 13. 953	11. 356 11. 321	9.549 9.524	8. 238 8. 219	7. 243 7. 229	6. 463 6. 451	5.834 5.825	5. 317 5. 309	4.884	17 18
19	45. 570	25. 899	18. 090	13. 900	11.285	9.499	8. 200	7. 214	6.440	5.815	5. 301	4.871	19
20	45.000	25.714	18.000	13. 846	11. 250	9.473	8, 181	7. 200	6.428	5.806	5. 294	4.865	20
$\frac{21}{22}$	44, 444 43, 902	25, 532 25, 352	17. 910 17. 822	13. 793 13. 740	11. 214 11. 180	9. 448 9. 424	8. 163 8. 144	7. 185	6.417	5. 797	5.286 5.278	4.858	$\begin{array}{c c} 21 \\ 22 \end{array}$
23	43, 373	25. 175	17. 734	13.688	11. 146	9.399	8. 126	7. 157	6. 394	5.778	5. 270	4. 845	23
24	42.857	25.000	17.647	13, 636	11.111	9.375	8. 108	7. 142	6. 383	5.769	5. 263	4.838	24
$\frac{25}{26}$	42. 353 41. 860	24. 828 24. 658	17. 560 17. 475	13. 584 13. 533	11. 077 11. 043	9. 350 9. 326	8. 090 8. 071	7. 128 7. 114	6.371	5. 760 5. 750	5. 255 5. 247	4.832	25 26
$\frac{20}{27}$	41.379	24. 490	17. 391	13. 483	11.043	9. 302	8.053	7. 100	6.349	5. 741	5. 240	4. 819	$\frac{20}{27}$
28	40.909	24.324	17. 307	13.433	10.975	9.278	8.035	7.086	6. 338	5.732	5, 232	4.812	28
29	40. 449	24. 161	17. 225	13. 383	$\frac{10.942}{10.000}$	$\frac{9.254}{0.920}$	8.017	7.072	$\frac{6.327}{6.315}$	$\frac{5.723}{5.714}$	5. 224	4.806	$\frac{29}{30}$
30 31	40.000 39.560	24. 000 23. 841	17. 143 17. 061	13. 333 13. 284	10. 909 10. 876	9. 230 9. 207	8. 000 7. 982	7. 059 7. 045	6. 304	5.705	5. 217 5. 210	4.800	31
32	39. 130	23.684	16.981	13. 235	10.843	9.183	7.964	7. 031	6. 293	5.696	5.202	4.787	32
33 34	38. 710 38. 298	23. 529 23. 377	16.901	13. 186	10.810	9. 160 9. 137	7.947 7.929	7. 017 7. 004	6. 282 6. 271	5. 687 5. 678	5. 195 5. 187	4.780	33 34
35	37. 895	$\frac{23.377}{23.226}$	$\frac{16.822}{16.744}$	$\frac{13, 138}{13, 091}$	$\frac{10.778}{10.746}$	$\frac{9.137}{9.113}$	$\frac{7.929}{7.912}$	6.990	6. 260	5.669	5. 179	4.768	35
36	37. 500	28. 077	16.667	13.043	10.714	9.090	7. 895	6.977	6. 250	5.660	5.172	4. 761	36
37	37. 113	22. 930	16. 590	12.996	10.682	9.068	7.877	6.963	6. 239	5.651	5. 164	4. 755	37
38 39	36. 735 36. 364	22. 785 22. 642	16. 514 16. 438	12. 950 12. 903	10.651 10.619	$9.045 \\ 9.022$	7. 860 7. 843	6. 950 6. 936	6. 228 6. 217	5. 642 5. 633	5. 157 5. 150	4.749	38 39
40	36.000	22.500	16. 363	$\frac{12.857}{12.857}$	10.588	9.000	7.826	6. 923	6. 207	5.625	5.143	4. 737	40
41	35. 644	22. 360	16. 289	12.811	10.557	8. 977	7.809	6.909	6. 196	5.616	5. 135	4. 731	41
42 43	35. 294 34. 951	22. 222 22. 086	16. 216 16. 143	12. 766 12. 721	10.526 $ 10.495 $	8. 955 8. 933	7. 792 7. 775	6.896 6.883	6. 185 6. 174	$\begin{bmatrix} 5.607 \\ 5.598 \end{bmatrix}$	5. 128 5. 121	4. 724 4. 718	42 43
44	34. 615	21. 951	16. 071	12.676	10. 465	8. 911	7.758	6.870	6.164	5. 590	5. 114	4.712	44
45	34. 286	21.818	16.000	12.631	10.434	8.889	7.741	6.857	6. 153	5.581	5.106	4. 706	45
46 47	33. 962 33. 645	21. 687 21. 557	15. 929 15. 859	12. 587 12. 543	10. 404 10. 375	8. 867 8. 845	7. 725 7. 708	6.844 6.831	6. 143 6. 132	5. 572 5. 564	5. 099 5. 091	4. 700 4. 693	46 47
48					10. 345	8. 823	7. 692	6.818	6. 122	5.555	5.084	4. 687	48
49	33. 028	21.302	15.721	12.456	10. 315	8. 801	7.675	6.805	6.112	5.547	5.077	4. 681	49
50 51	32. 727 32. 432	21. 176 21. 053	15. 652 15. 584	12. 413 12. 371	10. 286 10. 256	8. 780 8. 759	7. 659 7. 643	6. 792 6. 779	6. 101 6. 091	5. 538 5. 530	5. 070 5. 063	4. 675 4. 669	50 51
$\frac{51}{52}$	32. 143	20, 930	15. 517	12.371 12.329	$10.256 \ 10.227$	8. 737	7.627	6. 766	6.081	5. 521	5.056	4.663	52
53	31.858	20.809	15. 450	12.287	10.198	8.716	7.611	6.754	6.071	5.513	5.049	4.657	53
54 55	$\frac{31.579}{21.201}$	$\frac{20.690}{20.571}$		$\frac{12,245}{12,202}$	$\frac{10.169}{10.140}$	8.695	$\frac{7.595}{7.570}$	6.741	6.060	5.504	5.042	4.651	54
56	31. 304 31. 034	20. 571 20. 455	15. 319 15. 254	12. 203 12. 162	10. 140 10. 112	8. 675 8. 654	7. 579 7. 563	6. 739 6. 716	6. 050 6. 040	5. 496 5. 487	5. 035 5. 028	4. 645 4. 639	55 56
57	30.769	20. 339	15. 190	12.121	10.084	8.633	7.547	6.704	6.030	5.479	5.020	4.633	57
58 59	30. 508 30. 252	20. 225 20. 112		12. 080 12. 040	10. 055 10. 027	8. 612 8. 591	7. 531 7. 515	6. 691 6. 679	6. 020 6. 010	5. 471 5. 463	5. 013 5. 006	4. 627 4. 621	58 59
Sec.	1	2	3	4	5	6	7	8	9	10	11	12	Sec.
Dec.	/		9	*	,	,			3	10	- 1	12	500.

TABLE 36.

Reduction of Local Mean Time to Standard Meridian Time, and the reverse.

[If local meridian is east of standard meridian, subtract from local mean time, or add to standard meridian time. If local meridian is west of standard meridian, add to local mean time, or subtract from standard meridian time.]

Difference of longitude be- tween local meridian and standard meridian.	Reduction to be applied to local mean time.	Difference of longitude be- tween local meridian and standard meridian.	Reduction to be applied to local mean time.
0 / 0 /	Minutes.	0 / 0 /	Minutes.
0 00 to 0 07	0	7 23 to 7 37	30
0 08 to 0 22	1	7 38 to 7 52	31
0 23 to 0 37	2	7 53 to 8 07	32
0 38 to 0 52	2 3 4	8 08 to 8 22	33 ,
0 53 to 1 07	4	8 23 to 8 37	34
1 08 to 1 22	5	8 38 to 8 52	35
1 23 to 1 37	6	8 53 to 9 07	36
1 38 to 1 52	7	9 08 to 9 22	37
1 53 to 2 07	8	9 23 to 9 37	38
2 08 to 2 22	9	9 38 to 9 52	39
2 23 to 2 37	10	9 53 to 10 07	40
2 38 to 2 52	11	10 08 to 10 22	41
2 53 to 3 07	12	10 23 to 10 37	42
3 08 to 3 22	13	10 38 to 10 52	43
3 23 to 3 37	14	10 53 to 11 07	44
3 38 to 3 52	15	11 08 to 11 22	45
3 53 to 4 07	16	11 23 to 11 37	46
4 08 to 4 22	17	11 38 to 11 52	47
4 23 to 4 37	18	11 53 to 12 07	48
4 38 to 4 52	19	12 08 to 12 22	49
4 53 to 5 07	20	12 23 to 12 37	50
5 08 to 5 22	21	12 38 to 12 52	51
5 23 to 5 37	22	12 53 to 13 07	52
* 5 38 to 5 52	23	13 08 to 13 22	53
5 53 to 6 07	24	13 23 to 13 37	54
6 08 to 6 22	25	13 38 to 13 52	55
6 23 to 6 37	26	13 53 to 14 07	- 56
6 38 to 6 52	27	14 08 to 14 22	57
6 53 to 7 07	28	14 23 to 14 37	58
7 08 to 7 22	29	14 38 to 14 52	59

Note.—The pages formerly occupied with Tables 37 and 37A have been dropped, and consecutive page numbering is thereby broken.



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Error in Longitude due to one minute Error of Latitude.

e lti-	dis-							Lat	itude.									Polar dis- tance.	Sun's alti- tude.
Sun's alti-	Polar dis- tance.	00	50	100	150	200	250	30°	350	40°	450	50 °	550	600	650	700	750	Polan tan	Sun's
0 10 20 30 40 50 60	° 110	, .4 .4 .5 .7	, .4 .4 .5 .6 .9	, .4 .5 .6 .8 1.2	.5 .6 .7 1.0	.5 .7 .9 1.3	, 6 , 8 1.1	.7 1.0 1.5	1. 2 2. 3		, 1.3 2.6		2. 9	,	•		,	° 110	0 10 20 30 40 50 60
10 20 30 40 50 60	105	.3 .3 .4 .4	.3 .4 .5 .6	.3 .4 .5 .6 .8	.3 .4 .6 .7 1.2	.4 .5 .7 1.0	.4 .6 .8 1.3	.5 .7 1.1	1.5	.8 1.2 2.4		1. 2 2. 7	1.8	3.0				105	10 20 30 40 50 60
15 20 30 40 50 60	100	.2 .2 .2 .2 .3	.2 .2 .3 .3 .4 .6	.2 .3 .3 .4 .6	.3 .3 .4 .6 .8	.3 .4 .5 .7 1.2	.4 .5 .6 .9		.5 .7 1.1 2.1	.6 .9 1.5			1.6 2.7	2.9				100	15 20 30 40 50 60
15 20 30 40 50 60	95	.1 .1 .1 .1 .1	.1 .1 .2 .2 .3 .3	.1 .2 .2 .3 .4 .6	.2 .2 .3 .4 .6 .9	.2 .3 .4 .5	.3 .5 .7 1.1	.3 .4 .6 .9		.5 .6 1.0 2.1	.6 .8 1.5	2.5		1.7 2.8	3.0			95	15 20 30 40 50 60
20 30 40 50 60 70	90	.0 .0 .0 .0	.0 .1 .1 .1 .2 .2	.1 .2 .2 .2 .3	.1 .2 .3 .4 .5	.1 .2 .3 .5	.3 .5 .8	.2 .4 .6 1.1	.5		.6 1.0 2.2	.7 1.5	1. 1 2. 7	1.6	3.0			90	20 30 40 50 60 70
20 30 40 50 60 70	85	.1* .1* .1* .1* .2*	.1* .0 .0 .0 .0	.0 .0 .0 .1 .1	.0 .1 .1 .2 .3	.0 .1 .2 .3 .5	.1 .2 .3 .5	.1 .2 .4 .7	.2 .4 .6 1.1	.3 .5 .9	.3 .7 1.3	. 5 1. 0 2. 3	1.5	1. 0 2. 7	1.6	3. 1		85	20 30 40 50 60 70
20 30 40 50 60 70	80	.2* .2* .2* .3* .4*	· 2* · 2* · 2* · 2* · 2* · 3*	.1* .1* .1* .1*	.1* .0 .0 .1 .1	.1* .0 .1 .2 .3	.0 .1 .2 .3 .5 1.2	.0 .1 .3 .5 .9	.0 .2 .4 .7	.1 .3 .6 1.1		.6 1.3	.4 .9 2.4	.5 1.5	.9 2.8	1.5	3.1	80	20 30 40 50 60 70
20 30 40 50 60 70	75	.3* .3* .4* .4* .6* 1.2*	.3* .3* .3* .4* .6*	· 2* · 2* · 2* · 2* · 2* · 3*	.2* .2* .1* .1* .1*	.2* .1* .1* .0 .1	.1* .1* .0 .1 .3	.1* .0 .1 .3 .5 1.2	.1* .1 .2 .5 .9		.2 .5 1.1		.1 .6 1.3	2.5	.3 1.5	3.0	1.2	75	20 30 40 50 60 70
20 30 40 50 60 70	70	.4* .4* .5* .6*	.4* .4* .5* .6*	.3* .3* .3* .3*	.3* .3* .2* .3*	.3* .2* .2* .2* .1*	.1	$\begin{array}{c c} \cdot 1 \\ \cdot 2 \end{array}$.1* .1 .3 .5 1.2	.2* .0 .2 .4 .9	.2* .0 .3 .7	.2* .1 .5 1.1	.2*	. 2* . 6 1. 3	.2* .8 2.6	1. 5	. 2* 3. 1	70	20 30 40 50 60 70
Sun's alti- tude.	Polar dis-	90	50	100	150	200	250	800	850	400	450	\$0°	550	600	650	700	750	Polar dis-	Sun's alti- tude.
8m	P.							Lat	titude									Å,	Su

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TABLE 39.

Lati-						D	eclinatio	n.						Lati-
tude.	00.0	0°.5	10.0	10.5	2c.0	20.5	30.0	3°.5	40.0	40.5	50.0	50.5	60.0	tude.
0	0	0	0	0	٥	0	0	٥	٥	٥	٥	٥	٥	0
0 10	0.0	$0.5 \\ 0.5$	1.0 1.0	1.5 1.5	$\begin{array}{c} 2.0 \\ 2.0 \end{array}$	$\begin{array}{c} 2.5 \\ 2.5 \end{array}$	3.0	3.5	4.0	$\begin{array}{ c c c } 4.5 \\ 4.6 \end{array}$	5.0	5. 5 5. 6	6.0	0
15	0.0	0.5	1.0	1.5	2.1	2.6	3.1	3.6	4.2	4.7	5.2	5.7	6. 1 6. 2	10 15
20	0.0	0.5	1.1	1.6	$\frac{2.1}{2.2}$	$\begin{array}{c} 2.7 \\ 2.8 \end{array}$	3. 2 3. 3	3.7	4.3	4.8	5.3	5.8	6.4	20
30	$\frac{0.0}{0.0}$	$\frac{0.5}{0.6}$	$\frac{1.1}{1.2}$	$\frac{1.6}{1.7}$	$\frac{2.2}{2.3}$	$\frac{2.8}{2.9}$	$\frac{3.3}{3.4}$	$\frac{3.8}{4.0}$	$\frac{4.4}{4.6}$	$\frac{5.0}{5.2}$	$\frac{5.5}{5.8}$	6.0	6.6	$\frac{25}{30}$
32	0.0	0.6	1.2	1.8	2.4	2.9	3.5	4.1	4.7	5.3	5.9	6.5	7.0	$\frac{30}{32}$
34 36	0. 0 0. 0	$0.6 \\ 0.6$	1.2 1.2	1.8 1.8	$2.4 \\ 2.5$	$\begin{vmatrix} 3.0 \\ 3.1 \end{vmatrix}$	3. 6 3. 7	4. 2 4. 3	4.8	5. 4 5. 6	6.0	6.6	7. 2	34
38	0.0	0.6	1.3	1. 9	$\frac{2.5}{2.5}$	3. 2	3.8	4.4	5.1	5.7	6. 1	6. 8 7. 0	7. 4 7. 6	36 38
40	0.0	0.7	1.3	2.0	2.6	3.3	3.9	4.6	5. 2	5.9	6.5	7.2	7.8	40
42 44	0.0	$\begin{array}{c c} 0.7 \\ 0.7 \end{array}$	1. 3 1. 4	$\begin{array}{c} 2.0 \\ 2.1 \end{array}$	$\frac{2.7}{2.8}$	3. 4 3. 5	$\begin{array}{c c} 4.0 \\ 4.2 \end{array}$	4.7 4.9	5.4	6.1	6. 7 6. 9	7.4	8. 0 8. 3	42 44
46	0.0	0.7	1.4	2.2	2.9	3.6	4.3	5.0	5.8	6.5	7. 2	7.9	8.6	46
48	0.0	0.7	1.5	2.2	3.0	3.7	4.5	5.2	6.0	6.7	7.5	8.2	9.0	48
50 51	0.0	0. 8 0. 8	1. 5 1. 6	2. 3 2. 4	$\frac{3.1}{3.2}$	$\frac{3.9}{4.0}$	4.7	5. 4 5. 6	6. 2 6. 4	$7.0 \\ 7.2$	7.8 8.0	8. 6 8. 8	9.3 9.5	50 51
52	0.0	0.8	1.6	2.4	3.3	4.1	4.9	5.7	6.5	7.3	8.1	9.0	9.7	52
53 54	0.0	$0.8 \\ 0.9$	1. 6 1. 7	$\begin{array}{c c} 2.5 \\ 2.5 \end{array}$	3. 3 3. 4	4. 2 4. 3	5. 0 5. 1	5. 8 6. 0	6.7 6.8	7. 5 7. 7	8.3 8.5	$9.2 \\ 9.4$	$ \begin{array}{c c} 10.0 \\ 0.2 \end{array} $	53 54
55	0.0	$\frac{0.0}{0.9}$	1.7	2.6	$\frac{-3.5}{3.5}$	4.4	$\frac{5.1}{5.2}$	$\frac{-6.0}{6.1}$	$\frac{0.8}{7.0}$	7.9	$\frac{8.5}{8.7}$	$\frac{-9.4}{9.6}$	10.5	55
56	0.0	0.9	1.8	2.7	$\frac{3.6}{5}$	4.5	5.4	6.3	7.2	8.1	9.0	9.9	0.8	56
57 58	0.0	$0.9 \\ 0.9$	1.8 1.9	$\begin{bmatrix} 2.7 \\ 2.8 \end{bmatrix}$	$\frac{3.7}{3.8}$	4.6 4.7	5. 5 5. 7	6. 4 6. 6	7. 4 7. 6	8. 3 8. 5	9. 2 9. 5	10.1 0.4	1.1 1.4	57 58
59	0.0	1.0	1.9	2.9	3.9	4.9	5.8	6.8	_ 7.8	8.8	9.7	0.7	1.7	59
60 61	0.0	$\begin{bmatrix} 1.0 \\ 1.0 \end{bmatrix}$	$\begin{bmatrix} 2.0 \\ 2.1 \end{bmatrix}$	3. 0 3. 1	4. 0 4. 1	$5.0 \\ 5.2$	6. 0 6. 2	$\frac{7.0}{7.2}$	8. 0 8. 3	9. 0 9. 3	10. 0 0. 3	11. 0 1. 4	$12.1 \\ 2.5$	60
62	0.0	1.1	2.1	3.2	4.3	5.3	6.4	7. 2 7. 5	8.5	9.6	0. 7	1.8	$\frac{2.3}{2.9}$	$\begin{array}{c} 61 \\ 62 \end{array}$
63 64	0.0	1. 1 1. 1	$\begin{bmatrix} 2.2 \\ 2.3 \end{bmatrix}$	3. 3 3. 4	$\frac{4.5}{4.6}$	$5.5 \\ 5.7$	6.6	7. 7 8. 0	8.8 9.2	9.9	1.1	2.2	3.4	63
65.0	0.0	$\frac{1.1}{1.2}$	$\frac{2.3}{2.4}$	3.5	$\frac{4.0}{4.8}$	5.9	7.1	8.3	$\frac{9.2}{9.5}$	$\frac{10.3}{10.7}$	$\frac{1.5}{11.9}$	$\frac{2.6}{13.1}$	$\frac{3.9}{14.4}$	64 65.0
5.5	0.0	1, 2	2.4	3.6	4.8	6.0	7.2	8.5	9.7	0.9	2.1	3.4	4.6	5.5
$6.0 \\ 6.5$	0.0	$ \begin{array}{c c} 1.2 \\ 1.2 \end{array} $	$\begin{bmatrix} 2.5 \\ 2.5 \end{bmatrix}$	3. 7 3. 8	4.9 5.0	6. 1 6. 3	7.4 7.5	8. 6 8. 8	9.9 10.1	1.1 1.3	2. 4 2. 6	3.6 3.9	4.9 5.2	6. 0 6. 5
7.0	0.0	1.3	2.6	3.8	5.1	6.4	7.7	9.0	0.3	1.6	2.9	4.2	5.5	7.0
67. 5 8. 0	0.0	1.3 1.3	$\begin{bmatrix} 2.6 \\ 2.7 \end{bmatrix}$	3.9	5. 2 5. 3	6.5	7.9	9. 2	10.5	11.8	13. 2	14.5	15.9	67. 5
8.5	0.0	1.4	2.7	$\begin{array}{c c} 4.0 \\ 4.1 \end{array}$	5.4	6. 7 6. 8	8. 0 8. 2	9. 4 9. 6	0. 7 1. 0	$\begin{array}{c} 2.1 \\ 2.4 \end{array}$	3. 5 3. 8	4.8 5.2	6. 2 6. 6	8. 0 8. 5
9.0	0.0	1.4	2.8	4.2	5.5	7.0	8.4	9.8	1.2	2.6	4.1	5.5	7.0	9.0
$\frac{9.5}{70.0}$	$\frac{0.0}{0.0}$	$\frac{1.4}{1.5}$	$\frac{2.9}{2.9}$	4.3	$\frac{5.7}{5.8}$	$\begin{array}{c c} 7.2 \\ \hline 7.3 \end{array}$	$\frac{8.6}{8.8}$	$\frac{10.0}{10.3}$	$\frac{1.5}{11.8}$	$\frac{2.9}{13.3}$	14.8	$\frac{5.9}{16.3}$	7.4	$\frac{9.5}{70.0}$
0.5	0.0	$1.5 \\ 1.5 \\ 1.5$	3.0	4.5	6.0	7.5	9.0	0.5	2.1	3, 6	5.1	6.7	8. 2	0.5
1.0 1.5	0.0	$\begin{bmatrix} 1.5 \\ 1.6 \end{bmatrix}$	$\begin{array}{c c} 3.1 \\ 3.2 \end{array}$	4. 6 4. 7	6. 2 6. 3	7. 7 7. 9	9. 3 9. 5	$0.8 \\ 1.1$	2.4 2.7	3. 9 4. 3	5. 5 5. 9	7. 1 7. 8	8. 7 9. 2	1.0
2.0	0.0	1.6	3.2	4.9	6.5	8. 1	9.8	1.4	3.0	4. 7	6.4	8.1	9. 2	$1.5 \\ 2.0$
$\begin{bmatrix} 72.5 \\ 3.0 \end{bmatrix}$	0.0	1.7 1.7	3.3	5.0	6.7	8.3	10.0	11.7	13. 4	15. 1	16. 9	18.6	20.3	72.5
3.5	0.0	1.8	$\begin{array}{c c} 3.4 \\ 3.5 \end{array}$	$\begin{bmatrix} 5.1 \\ 5.2 \end{bmatrix}$	6. 9 7. 1	8. 6 8. 8	0.3	$\begin{array}{c c} 2.0 \\ 2.4 \end{array}$	3.8 4.2	5. 5 6. 0	7.4 7.9	9. 1 9. 7	$0.9 \\ 1.6$	$\frac{3.0}{3.5}$
4. 0 4. 5	0.0	1.8	3.6	5.4	7.3	9.1	0.9	2.8	4.6	6.5	8.4	20.3	2.3	4.0
75.0	$\begin{array}{c c} 0.0 \\ \hline 0.0 \end{array}$	$\frac{1.9}{1.9}$	$\frac{3.7}{3.8}$	5.6	$\frac{7.5}{7.7}$	$\frac{9.4}{9.7}$	$\frac{1.3}{11.7}$	$\frac{3.2}{13.6}$	$\frac{5.1}{15.6}$	$\frac{7.1}{17.7}$	$\frac{9.0}{19.7}$	$\frac{1.0}{21.7}$	3. 0 23. 8	$\frac{4.5}{75.0}$
5.5	0.0	2.0	3.9	6.0	8.0	10.0	2.1	4.1	6.2	8.3	20.4	2.5	4.7	5.5
6. 0 6. 5	0.0	$\begin{bmatrix} 2.1 \\ 2.1 \end{bmatrix}$	$\begin{array}{c c} 4.0 \\ 4.2 \end{array}$	$\begin{array}{c c} 6.2 \\ 6.4 \end{array}$	8. 3 8. 6	0.4	$\begin{bmatrix} 2.5 \\ 3.0 \end{bmatrix}$	$\frac{4.6}{5.2}$	6. 8 7. 4	8. 9 9. 6	1.1 1.9	3. 3 4. 2	5. 6 6. 6	6.0
7.0	0.0	$\tilde{2}.\tilde{2}$	4.4	6.6	8.9	1.2	3.5	5.8	8.1	20.4	2.8	5. 2	7.7	6. 5 7. 0
													i	

TABLE 39.

						Dec	clination	n.						Lati-
Lati- tude.	60.0	60.5	7°.0	70.5	80.0	80.5	90.0	90.5	10°.0	10°.5	11°.0	110.5	120.0	tude.
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	$\frac{11.0}{1.2}$	11.5	$12.0 \\ 2.2$	0 10
10	$\begin{array}{c c} 6.1 \\ 6.2 \end{array}$	6.6	7.1 7.2	$\begin{array}{c c} 7.6 \\ 7.8 \end{array}$	$\begin{array}{c c} 8.1 \\ 8.3 \end{array}$	8.6	9. 1 9. 3	9.7 9.8	0.1	0.7	1.4	1.9	2.5	15
$\frac{15}{20}$	6.4	6.9	7.4	8.0	8.5	9. 1	9.6	10.1	0.7	1.2	1.7	2.3	2.8	20
25	6.6	7.1	7.7	8.3	8.8	9.4	9.9	0.5	1.1	1.6	2.2	2.8	3.3	25
30	6.9	7. 5	8.1	8.7	9.3	9.8	10. 4 0. 6	$\frac{11.0}{1.2}$	11.5 1.8	$\begin{bmatrix} 12.1 \\ 2.4 \end{bmatrix}$	12. 7 3. 0	13. 3 3. 6	13. 9 4. 2	$\frac{30}{32}$
32 34	$7.0 \\ 7.2$	7.7	8. 3 8. 5	$\begin{array}{c c} 8.8 \\ 9.0 \end{array}$	$\begin{array}{c c} 9.5 \\ 9.7 \end{array}$	10.0	0. 8	$\frac{1.2}{1.5}$	$\frac{1.8}{2.1}$	2.7	3. 3	3.9	4.5	34
36	7.4	8.0	8.7	9.3	9.9	0.5	1.1	1.8	2.4	3.0	3.6	4.3	4.9	36
38	7.6	8.2	8.9	9.5	10. 2	0.8	1.4	2.1	2.7	3.4	4.0	4.7	5.3	38
40	7.8	8.5	9. 1 9. 4	$9.8 \\ 10.1$	$\begin{bmatrix} 10.5 \\ 0.8 \end{bmatrix}$	11. 1 1. 5	$\frac{11.7}{2.1}$	$\frac{12.4}{2.8}$	13. 1 3. 5	13.8 4.2	14.4	15. 1 5. 6	15. 7 6. 2	40 42
42 44	8. 0 8. 3	8. 8 9. 1	9.4	0.5	1.1	1.9	$\frac{2.1}{2.5}$	3, 3	4.0	4.7	5.3	6.1	6.8	44
46	8.6	9.4	10.1	0.8	1.5	2.3	3.0	3.8	4.5	5. 2	5. 9	6.7	7.4	46
48	9.0	9.7	0.5	1.2	2.0	2.8	3.5	4.3	5.0	5.8	6.6	7.3	8.1	48
50 51	9.3 9.5	10. 1 0. 4	$10.9 \\ 1.2$	$\begin{array}{c c} 11.7 \\ 2.0 \end{array}$	12.5 2.8	13. 3 3. 6	14. 1 4. 4	14. 9 5. 2	15. 7 6. 0	16. 5 6. 8	17. 3 7. 7	18. 1 8. 5	18. 9 9. 3	50 51
$\frac{51}{52}$	9.7	0.4	1.4	2. 2	3.1	3.9	4.7	5.6	6.4	7.2	8.1	8.9	9.7	$5\overline{2}$
53	10.0	0.8	1.7	2.5	3.4	4.2	5. 1	5.9	6.8	7.6	8.5	9.4	20. 2	53
54	0.2	1.1	2.0	2.8	3.7	4.6	5.4	6.3	7.2	$\frac{8.1}{18.5}$	$\frac{8.9}{19.4}$	$\frac{9.8}{20.3}$	$\frac{0.7}{21.2}$	$\frac{54}{55}$
55 56	$ \begin{array}{c} 10.5 \\ 0.8 \end{array} $	11.4 1.7	$12.3 \\ 2.6$	13. 1 3. 5	14. 0 4. 4	14. 9 5. 3	15.8 6.2	$\begin{array}{c c} 16.7 \\ 7.2 \end{array}$	17. 6 8. 1	9.0	9.9	0.9	1.8	56
57	1.1	2.0	2. 9	3. 9	4.8	5.8	6.7	7.7	8.6	9.6	20.5	1.5	2.4	57
58	1.4	2.3	3.3	4.3	5. 2	6. 2	7.2	8.2	9.1	20. 1	1.1	2.1	3.1	58 59
59	$\frac{1.7}{10.1}$	$\frac{2.7}{10.1}$	3.7	4.7	$\frac{5.7}{16.2}$	$\frac{6.7}{17.2}$	$\frac{7.7}{18.2}$	$\frac{8.7}{19.3}$	$\frac{9.7}{20.3}$	$\frac{0.7}{21.4}$	$\frac{1.7}{22.4}$	$\frac{2.8}{23.5}$	$\frac{3.8}{24.6}$	$\frac{-60}{60}$
60 61	$12.1 \\ 2.5$	13. 1 3. 5	14. 1 4. 6	15. 1 5. 6	6.7	$\frac{17.2}{7.8}$	8.8	9.9	1.0	2.1	3. 1	4.3	5.4	61
62	2.9	3.9	5.1	6.1	7.3	8.4	9.4	20.6	1.7	2.9	3.9	5.2	6.3	62
63	3.4	4.4	5.6	6.7	7.9	9.0	20.1	$\begin{array}{ c c c } 1.3 \\ 2.1 \end{array}$	2.5	3.7	4.8	6.1	7.2	63 64
64	$\frac{3.9}{14.4}$	$\frac{5.0}{15.5}$	$\frac{6.2}{16.8}$	$\frac{7.3}{18.0}$	$\frac{8.5}{19.3}$	$\frac{9.7}{20.5}$	$\frac{0.9}{21.7}$	$\frac{2.1}{23.0}$	$\frac{3.3}{24.2}$	25.6	26.8	$\frac{7.1}{28.2}$	29.5	$\frac{-65.0}{65.0}$
65. 0 5. 5	4.6	5.8	7.1	8.3	9.6	0.9	2.2	3.5	4.7	6.1	7.4	8.7	30.1	5.5
6.0	4.9	6.2	7.4	8.7	20.0	1.3	2.6	3.9	5.3	6.6	8.0	9.3	0.7	6.0
$6.5 \\ 7.0$	5. 2 5. 5	6. 5 6. 8	7.8	$9.1 \\ 9.5$	0.4	$\begin{array}{c c} 1.8 \\ 2.2 \end{array}$	3.1	4. 4 5. 0	5.8 6.4	7. 2 7. 8	8. 6 9. 2	30.0	1. 4 2. 1	6. 5 7. 0
67.5	$\frac{5.5}{15.9}$	$\frac{0.8}{17.2}$	18.6	19.9	$\frac{0.3}{21.3}$	$\frac{2.2}{22.7}$	24.1	25.5	27.0	28.4	29. 9	31. 4	32. 9	67.5
8.0	6. 2	7.6	9.0	20.4	1.8	3. 2	4.7	6.1	7.6	9.1	30.6	2.2	3.7	8.0
8.5	6.6	8.0	9.4	0.9	2. 3 2. 8	3.8	5.3	6.8	8.3	9.8	$\begin{array}{c c} 1.4 \\ 2.2 \end{array}$	3.0	4.6	8. 5 9. 0
9.0	7.0	8.4	9.9	1.4	3.4	5.0	6.5	8.1	9.7	1.4	3.0	4.7	6.4	9.5
70.0	17.8	19. 3	20.9	22.4	24.0	25.6	27.2	28.8	30.5	32.2	33. 9	35.7	37.4	70.0
0.5	8. 2	9.8	1.4	3.0	4.6	6.3	7.9	9.6	1.3	3.1	4.9	6.7	8.5	0.5
1.0	8.7 9.2	20.3	$\begin{array}{c c} 2.0 \\ 2.6 \end{array}$	3.6	5.3	7.0	8.7 9.5	30.5	2.2	4.0	5. 9 7. 0	7.8	9.7	1. 0 1. 5
2.0	9. 2	1.5	3.2	5.0	6.8	8.6	30. 4	2.3	4.2	6.1	8.1	40. 2	2.3	2.0
72.5	20.3	22.1	23. 9	25.7	27.6	29.5	31.4	33. 3	35. 3	37.3	39.4	41.5	43.7	72.5
3.0	0.9	2.8	4.6	6.5	8.4	30.4	2.4	4. 4 5. 5	6.5	8.6	40.8	3.0	5.3	3. 0 3. 5
3.5	1.6 2.3	3.5	5. 4 6. 2	7.4	30.3	$\begin{array}{ c c c } 1.4 \\ 2.5 \end{array}$	4.6	6.8	9.1	41.4	3.8	6.3	8.9	4.0
4.5	3.0	5.1	7.1	9.3	1.4	3.6	5.8	8.2	40.5	3.0	5.6	8.2	51.1	4.5
75.0	23.8	26.0	28.1	30.3	32.5	34.8	37.2	39.6	42.1	44.8	47.5	50.4	53.5	75.0
5.5 6.0	4.7 5.6	6.9	9.1	1.4 2.6	3.8 5.1	6.2	8.7	41. 2 3. 0	3.9 5.9	6.7	9. 6 52. 1	2.8	6.2	5. 5 6. 0
6.5	6.6	9.0	1.4	4.0	6.6	9.3	2.1	5.0	8.1	51.3	4.8	8.7	63.0	6.5
17.0	7. 7	30. 2	2.8	5.5	8. 2	41.1	4.1	7.2	50.5	4.1	8.0	62. 4	7.6	7.0
						<u> </u>	L					·		

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TABLE 39.

Lati-						De	eclinatio	n.						Lati-
tude.	120.0	120.5	130.0	130.5	140.0	140.5	150.0	150.5	16°.0	160.5	170.0	170.5	180.0	tude.
0	0	С	0	0	٥	0	0	0	٥	0	٥	0	0	0
0	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17. 5	18.0	0
10	$\frac{2.2}{2.5}$	$\begin{array}{c c} 2.7 \\ 2.9 \end{array}$	$\frac{3.2}{3.5}$	3. 7 4. 0	4. 2 4. 5	4. 7 5. 0	5. 3 5. 6	5. 8 6. 1	6.3	6.8	7.3	7. 9 8. 2	8. 3 8. 7	10 15
15 20	2. 8	3.3	3.8	4.4	4.9	5.5	6.0	6.5	7.1	7.6	8.1	8.7	9. 2	20
25	3. 3	3.8	4.4	4.9	5.5	6.1	6.6	7.1	7.7	8.3	8.8	9.4	9.9	25
30	13.9	14.5	15.0	15.6	16. 2	16.8	17.4	18.0	18.6	19. 2	19.7	20.3	20.9	30
32	4.2	4.8	5.3	6.0	6.6	7.2	7.8	8.4	9.0	9.6	20. 2	0.8	1.4	32
34 36	4.5	5. 1 5. 5	5. 7 6. 1	6.4	$7.0 \\ 7.4$	7. 6 8. 0	8. 2 8. 7	8. 8 9. 3	$9.5 \\ 20.0$	20.0	0.7	1.3 1.8	$1.9 \\ 2.5$	34 36
38	5.3	6.0	6.6	7.2	7. 9	8.5	9. 2	9.8	0.5	1.1	1.8	2.4	3.1	38
40	15.7	16.4	17.1	17.8	18.4	19.1	19.7	20.4	21.1	21.8	22.4	23. 1	23.8	40
41	6.0	6.7	7.3	8.0	8.7	9.4	20.0	0.8	1.4	2.1	2.8	3.5	4. 2	41
42	6. 2	6.9	7.6	8.3	9.0	9.7	0.4	1.1	1.8	2.5	3.2	3.9	4.6	42
43 44	6. 5 6. 8	$\begin{array}{c} 7.2 \\ 7.5 \end{array}$	7. 9 8. 2	8.6 8.9	9.3 9.6	20.0	0.7	1.4	2. 2 2. 6	2.9	3. 6 4. 0	4.3	5. 0 5. 4	43 44
45	17.1	$\frac{7.8}{17.8}$	$\frac{6.2}{18.5}$	19.3	20.0	20. 7	21.5	$\frac{1.8}{22.2}$	23.0	23.7	24.4	25. 2	25. 9	$\frac{44}{45}$
46	7.4	8.2	8.9	9.6	0.4	1.1	1.9	2.6	3.4	4.1	4.9	5.7	6.4	46
47	7.7	8.5	9.3	20.0	0.8	1.5	2.3	3.1	3.8	4.6	5.4	6. 2	6.9	47
48	8.1	8.9	9.7	0.4	1.2	2.0	2.8	3.6	4.3	5.1	5. 9	6.7	7.5	48
49	8.5	9.3	20.1	0.8	1.6	2.4	3.2	4.1	4.9	5.7	6.5	7.3	8. 1	49
50 51	18. 9 9. 3	19.7 20.1	$ \begin{array}{c c} 20.5 \\ 0.9 \end{array} $	21.3	22. 1 2. 6	22. 9 3. 5	$\begin{array}{c} 23.7 \\ 4.3 \end{array}$	24. 6 5. 1	25.4	26. 2 6. 8	27. 0 7. 6	27. 9 8. 5	28.7 9.4	50 51
52	9. 7	0.6	1.4	2.3	3.1	4.0	4.9	5.7	6.6	7.5	8.3	9.2	30.1	$\frac{51}{52}$
53	20.2	1.1	1.9	2.8	3.7	4.6	5.5	6.4	7.3	8.2	9.0	30.0	0.9	53
54	0.7	1.6	2.5	3.4	4.3	5.2	6.1	7.1	8.0	8.9	9.8	0.8	1.7	54
55	21. 2	22. 2	23. 1	24.0	24.9	25. 9	26.8	27.8	28. 7	29.7	30.6	31.6	32.6	55
56 57	$1.8 \\ 2.4$	2.8	3. 7 4. 4	4. 7 5. 4	5.6	$\begin{array}{ c c c c c } 6.6 \\ 7.4 \end{array}$	7. 6 8. 4	8.6	$9.5 \\ 30.4$	30.5	1.5 2.5	2.5	3. 6 4. 6	56
58	3.1	4.1	5.1	6.1	7. 2	8.2	9.2	30.3	1.3	2.4	3.5	4.6	5.7	57 58
59	3.8	4.8	5.9	6.9	8.0	9.1	30. 2	1.3	2.3	3.5	4.6	5.7	6.9	59
60	24.6	25.6	26.7	27.8	28. 9	30.1	31. 2	32.3	33.4	34.6	35.8	36.9	38. 2	60
61	5.4	6.5	7.6	8.8	9.9	1.1	2.2	3.5	4.6	5.8	7.1	8.3	9.6	61
62 63	$6.3 \\ 7.2$	7. 5 8. 5	8. 6 9. 7	9.8	31.0	2. 2 3. 5	3. 4 4. 7	4. 7 6. 1	5.9	7. 2 8. 7	8.5	9.8	$\begin{array}{c c} 41.2 \\ 2.9 \end{array}$	62 63
64	8.3	9.6	30.9	2. 2	3.5	4.8	6. 2	7.6	9.0	40.4	1.8	3.3	4.8	64
65.0	29.5	30.8	32. 2	33.5	34. 9	36.3	37.8	39.2	40.7	42. 2	43.8	45. 4	47.0	65. 0
5.5	30.1	1.5	2.9	4.3	5.7	7.1	8.6	40.1	1.6	3. 2	4.8	6.5	8.2	5. 5
6.0	0.7	2. 2 2. 9	3.6	5.0	6.5	8.0	9.5	1.1	2.7	4.3	5.9	7.7	9.4	6.0
6. 5 7. 0	$1.4 \\ 2.1$	3.6	4.3 5.1	5.8	7.3	8. 9 9. 8	40.5	$\begin{array}{c c} 2.1 \\ 3.2 \end{array}$	3.8	5.4	7. 1 8. 4	8. 9 50. 3	50. 8 2. 3	6. 5 7. 0
67.5	32.9	34.4	36.0	37.6	39. 2	40.8	42.6	44.3	46.1	47.9	49.8	51.8	53.9	$\frac{7.0}{67.5}$
8.0	3.7	5.3	6.9	8.6	40. 2	1.9	3.7	5.5	7.4	9.3	51.3	3.4	5.6	8.0
8.5	4.6	6. 2	7.9	9.6	1.3	3.1	4.9	6.8	8.8	50.8	2.9	5.1	7.5	8.5
9. 0 9. 5	5. 5 6. 4	7. 2 8. 2	8. 9 40. 0	1.8	2.5	4.3 5.6	6. 2 7. 6	8. 2 9. 7	50.3	2.4	4.6	7.0	9.6	9.0
70.0	$\frac{0.4}{37.4}$	39.3	41.1	43.0	45.0	$\frac{3.6}{47.0}$	49.2	51.4	$\frac{1.9}{53.7}$	56.1	6. 5 58. 7	$\frac{9.1}{61.5}$	$\frac{61.9}{64.6}$	$\frac{9.5}{70.0}$
0.5	8.5	40.4	2.4	4.4	6.4	8.6	50.8	3. 2	5.7	8.3	61.1	4.3	7.8	0.5
1.0	9.7	1.7	3.7	5.8	8.0	50.3	2.6	5. 2	7.9	60. 7	3.9	7.5	71.7	1.0
1.5	40.9	3.0	5.1	7.4	9.7	2.1	4.6	7.4	60.3	3.5	7.1	71.4	6.9	1.5
$\frac{2.0}{72.5}$	2.3	4.4	6.7	9.1	51.5	4.1	6.9	9.9	3.1	6.8	71.1	6.7	90.0	2.0
3.0	43. 7 5. 3	46. 0 7. 7	48. 4 50. 3	50. 9 3. 0	53. 6 5. 9	56. 4 8. 9	59. 4 62. 2	62. 7 6. 1	66. 4 70. 6	70. 9 6. 3	76. 5 90. 0	90.0		72. 5 3, 0
3.5	7.0	9.6	2.3	5.3	8.4	61.8	5.6	70.3	6.1	90.0	50.0			3.5
4.0	8.9	51.7	4.7	7.9	61.4	5.3	9.8	75.9	90.0					4.0
4.5	51.1	4.1	7.3	60.9	4.9	9.5	75.5	90.0						4.5

TABLE 39.

						D	eclinatio	n.						T = 42
Lati- tude.	18°.0	180.5	190.0	190.5	20°.0	20°.5	21°.0	21°.5	22°.0	220.5	23°.0	23°.5	24°.0	Lati- tude.
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0 10	18. 0 8. 3	18.5	19.0	19.5 9.8	$\begin{array}{c c} 20.0 \\ 0.3 \end{array}$	20.5	$\begin{array}{c c} 21.0 \\ 1.3 \end{array}$	$\begin{array}{c c} 21.5 \\ 1.8 \end{array}$	22. 0 2. 3	$\begin{array}{c} 22.5 \\ 2.9 \end{array}$	23.0	23.5	$\begin{bmatrix} 24.0 \\ 4.4 \end{bmatrix}$	0 10
15	8.7	9.2	9. 7	20. 2	0.3	1.3	1.8	$\frac{1.8}{2.3}$	2.8	3.3	3.9	4.4	4.9	15
20	9. 2	9.7	20.3	0.8	1.4	1.9	2.4	3. 0	3.5	4.0	4.6	5. 1	5. 7	20
25	9.9	20.5	1.1	1.6	2.2	2.7	3.3	3.9	4.4	5.0	5.5	6.1	6.7	25
30	20. 9	21.5	22. 1	22.7	23. 3	23.8	24.4	25.0	25. 6	26. 2	26.8	27.4	28.0	30
$\frac{32}{34}$	1. 4 1. 9	$\begin{array}{c} 2.0 \\ 2.5 \end{array}$	2. 6 3. 1	3. 2 3. 8	3.8 4.4	4. 4 5. 0	5. 0 5. 6	5. 6 6. 2	6. 2	6.8	7.4 8.1	8. 0 8. 7	8.7 9.4	$\frac{32}{34}$
36	$\frac{1.5}{2.5}$	3. 1	3.7	4.4	5. 0	5.7	6.3	6.9	7.6	8.2	8.9	9.5	30. 2	36
38	3. 1	3.8	4.4	5. 1	5.7	6.4	7.0	7. 7	8.4	9. 1	9.7	30.4	1.1	38
40	23. 9	24.4	25.1	25.8	26.5	27.2	27.9	28.6	29.3	30.0	30. 7	31.3	32. 1	40
41	4.2	4.8	5.5	6.2	6.9	7.7	8.3	9.1	9.8	0.5	1.2	1.8	2.6	41
42 43	4. 6 5. 0	5. 3 5. 7	6.0	6.7 7.2	7.4	8. 1 8. 6	8.8 9.3	$9.6 \\ 30.1$	30. 3	$1.0 \\ 1.6$	1.7 2.3	2. 4 3. 0	3. 2 3. 8	$\frac{42}{43}$
44	5.4	6. 2	6,9	7.7	8.4	9.1	9.8	0.6	1.4	2. 2	2.9	3.6	4.4	44
45	25.9	26.7	27.4	28. 2	28.9	29.7	30.4	31. 2	32.0	32.8	33.5	34.3	35.1	45
46	6.4	7.2	7.9	8.7	9.5	30.3	1.0	1.8	2.6	3.4	4. 2	5.0	5.8	46
47	$6.9 \\ 7.5$	7. 7 8. 3	8. 5 9. 1	9.3	30.1	$0.9 \\ 1.6$	$1.7 \\ 2.4$	$\frac{2.5}{3.2}$	3.3	4.1	4. 9 5. 7	5. 7 6. 5	6. 6 7. 4	47 48
48 49	8.1	8. 9	$9.1 \\ 9.7$	30.6	0.7	2.3	3.1	4.0	4.0	5.7	6.5	7.4	8.3	48 49
50	28.7	29.6	30. 4	31. 3	32.1	33. 0	33. 9	34.8	35, 6	36.5	37.4	38. 3	39. 2	50
51	9.4	30. 3	1.1	2.0	2.9	3.8	4.7	5.6	6.5	7.4	8.4	9.3	40.2	51
52	30.1	1.0	1.9	2.8	3.7	4.7	5.6	6.5	7.5	8.4	9.4	40.3	1.3	52
53 54	$0.9 \\ 1.7$	$\frac{1.8}{2.7}$	2.7 3.6	3.7 4.6	4.6 5.6	5. 6 6. 6	6.6	7. 5 8. 6	8. 5 9. 6	$9.5 \\ 40.6$	40. 5 1. 7	$\begin{array}{c c} 1.4 \\ 2.6 \end{array}$	2. 5 3. 8	53 5 4
55	32, 6	33.6	34.6	35.6	36.6	37.6	$\frac{7.0}{38.7}$	$\frac{39.7}{39.7}$	40.8	41. 9	42.9	44.0	45. 2	$\frac{54}{55}$
56	3.6	4.6	5.6	6.7	7.7	8.8	9.8	41.0	2.1	3.2	4.3	5.4	6.7	56
57	4.6	5.6	6.7	7.8	8.9	40.0	41.1	2.3	3.5	4.6	5.8	7.0	8.3	57
58 59	5.7 6.9	6. 8 8. 0	$7.9 \\ 9.2$	9. 1 40. 4	40. 2 1. 6	$\frac{1.4}{2.8}$	2.5	3.8	5. 0 6. 7	6. 2 8. 0	7. 5 9. 3	8. 8 50. 7	50.1 2.2	58 59
60.0	38. 2	39.4	40.6	$\frac{40.4}{41.9}$	$\frac{1.0}{43.2}$	$\frac{2.8}{44.5}$	$\frac{4.1}{45.8}$	$\frac{5.4}{47.2}$	48.6	$\frac{8.0}{49.9}$	$\frac{9.3}{51.4}$	52. 9	54.4	60.0
0.5	8.9	40.1	1.4	$\frac{41.3}{2.7}$	4.0	5.4	6.7	8.1	9.6	51.0	2.5	4.1	5.7	0.5
1.0	9.6	0.9	2. 2	3.5	4.9	6.3	7.7	9.1	50.6	2. 1	3.7	5.3	7.0	1.0
1.5	40.4	1.7	3.0	4.4	5.8	7.3	8.7	50. 2	1.7	3.3	5.0	6.7	8.5	1.5
$\frac{2.0}{62.5}$	$\frac{1.2}{42.0}$	$\frac{2.5}{43.4}$	$\frac{3.9}{44.9}$	$\frac{5.3}{46.3}$	$\frac{6.8}{47.8}$	$\frac{8.3}{49.4}$	9.8	$\frac{1.3}{52.6}$	$\frac{2.9}{54.2}$	4.6	6.3	$\frac{8.1}{59.7}$	60.0	2.0
3.0	$\frac{42.0}{2.9}$	45.4	5.9	7.4	8.9	50.5	$\begin{array}{c} 51.0 \\ 2.2 \end{array}$	3.9	5.6	56. 0 7. 5	57. 8 9. 4	61.4	61. 7 3. 6	62.5
3.5	3.8	5. 3	6.9	8.5	50.1	1.7	3.5	5.3	7. 1	9.1	61.1	3. 4	5.7	3.5
4.0	4.8	6.4	8.0	9.7	1.3	3.0	4.9	6.7	8.7	60.7	3.0	5.5	8.1	4.0
4.5	5.9	7.5	9.2	50.9	2.6	4.5	6.4	8.4	60.5	2.8	5.2	7.8	70.9	4.5
65. 0 5. 5	$47.0 \\ 8.2$	48. 7 50. 0	$50.4 \\ 1.8$	52. 2 3. 6	54. 0 5. 6	56. 0 7. 6	58. 0 9. 8	$\begin{array}{c} 60.2 \\ 2.2 \end{array}$	62.5 4.7	$64.9 \\ 7.3$	67. 6 70. 4	$70.6 \\ 4.1$	$74.4 \\ 8.9$	65. 0 5. 5
6.0	9.4	1.3	3.2	5.1	7.3	9.4	61.8	4.4	7.1	70. 2	3.8	8.6	90.0	6.0
6.5	50.8	2.7	4.7	6.8	9.1	61.4	4.0	6.8	70.0	3.7	8.4	90.0	30.0	6.5
7.0	2.3	4.3	6.4	8.7	61.1	3.7	6.5	9.8	3.5	8.3	90.0			7.0
67. 5 8. 0	53.9 5.6	56. 0 7. 9	58.3 60.3	60. 7 3. 0	63.4	66. 2	69.5	73.3	78.2	90.0				67.5
8.5	7.5	60.0	2.6	5.6	5. 9 8. 9	$\begin{array}{c} 9.2 \\ 72.8 \end{array}$	73.0	$\frac{8.1}{90.0}$	90.0					8. 0 8. 5
9.0	9.6	2.3	5.3	8.7	72.7	7. 7	90.0	30.0						9.0
9.5	61.9	5.0	8.4	72.4	7.6	90.0								9.5
70.0	64.6	69. 1	72.2	77.4	90.0									70.0
0.5	7. 8 71. 7	$71.9 \\ 7.1$	$7.2 \\ 90.0$	90.0										0.5
1.5	6.9	90.0	00.0											1.5
2.0	90.0													2.0

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TABLE 39.

Lati-						De	eclinatio	n.						Lati-
tude.	24°.0	240.5	250.0	25°.5	26°.0	26°.5	270.0	27°.5	280.0	28°.5	290.0	290.5	300.0	tude.
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	24.0	24.5	25.0	25. 5	26.0	26.5	27.0	27.5	28.0	28.5	29.0	29.5	30.0	0
4	4.1	4.6	5.1	5.6	6.1	6.6	7.1	7.6	8.1	8.6	9.1	9.6	0.1	4
8	4. 3 4. 6	4.8 5.1	5. 3 5. 6	$\begin{array}{c c} 5.8 \\ 6.1 \end{array}$	6. 3 6. 6	6.8	7.3	7.8 8.1	8. 3 8: 7	8.8 9.2	9.3 9.7	$9.8 \\ 30.2$	$\begin{bmatrix} 0.3 \\ 0.7 \end{bmatrix}$	$\frac{8}{12}$
6	5.0	5.6	6.1	6.6	7.1	7. 6	8.2	8.7	9. 2	9. 2	30. 3	0.8	1.3	16
0	$\frac{5.0}{25.7}$	26.2	26.7	$\frac{3.3}{27.3}$	27.8	28. 3	28. 9	29.4	30.0	30.5	31. 1	31.6	32.1	$\frac{10}{20}$
2	6.0	6.6	7.1	7.7	8.2	8.8	9. 3	9.9	0.4	1.0	1.5	2.1	2.6	22
4	6.4	7.0	7.6	8. 1	8.7	9.2	9.8	30.4	0.9	1.5	2.0	2.6	3.2	24
6	6. 9	7.5	8.1	8.6	9.2	9.7	30. 3	0.9	1.5	2.1	2.6	3.2	3.8	26
8	7.4	8.0	8.6	9.2	9.8	30.3	0.9	1.5	2.1	2.7	3, 3	3.9	4.5	28
0 1	28. 0 8. 3	28. 6 8. 9	29. 2 9. 5	29. 8 30. 1	30. 4 0. 8	31. 0 1. 4	$\begin{array}{c} 31.6 \\ 2.0 \end{array}$	32. 2 2. 6	32. 8 3. 2	33.4	34. 0 4. 5	34. 7 5. 1	35. 3 5. 7	30 31
2	8.7	9.3	9.9	0.5	1.1	1.7	2.4	3.0	3. 6	4.2	4.9	5.5	6.1	$\frac{31}{32}$
3	9.0	9.6	30. 2	0. 9	1.5	2.1	2.8	3. 4	4.0	4.7	5. 3	6.0	6.6	33
4	9.4	30.0	0.6	31. 3	1.9	2.6	3. 2	3.8	4.5	5.1	5.8	6.4	7.1	34
5	29.8	30.4	31.1	31.7	32.3	33.0	33.6	34.3	35.0	35.6	36.3	36. 9	37.6	35
6	30. 2	0.8	1.5	2.1	2.8	3.5	4.1	4.8	5.5	6.1	6.8	7.5	8.2	36
7	0.6	1.3	1.9	2.6	3.3	4.0	4.6	5.3	6.0	6.7	7.4	8.1	8.8	37
8 9	1.1 1.6	$\begin{array}{c} 1.7 \\ 2.2 \end{array}$	$2.4 \\ 2.9$	3. 1 3. 6	3.8 4.3	4.5 5.0	5. 2 5. 7	5. 9 6. 5	$6.6 \\ 7.2$	7.3 7.9	8. 0 8. 6	8.7 9.3	9. 4 40. 0	38 39
0	32.1	32.8	33.5	34.2	34.9	35.6	36.3	37.1	37.8	38.5	39.3	40.0	40.7	$-\frac{33}{40}$
1	2.6	3. 3	4.1	4.8	5.5	6. 2	7.0	7. 7	8.5	9.2	40.0	0.7	1.5	41
$\hat{2}$	3. 2	3.9	4.7	5.4	6.1	6. 9	7.7	8.4	9. 2	9. 9	0.7	1.5	2.3	42
3	3.8	4.5	5.3	6.1	6.8	7.6	8.4	9.2	9.9	40.7	1.5	2.3	3.1	43
4	4.4	5.2	6.0	6.8	7.5	8.3	9.1	40.0	40.7	1.6	2.4	3. 2	4.0	44
5	35. 1	35. 9	36. 7	37.5	38. 3	39.1	39. 9	40.8	41.6	42.5	43.3	44.1	45.0	45
$\frac{6}{7}$	5.8 6.6	6.6	7.5	8.3	9.1	40.0	40.8	1.7	2.5	3.4	4.3	5.1	6.0	46
7	7.4	7. 4 8. 3	$8.3 \\ 9.2$	9. 1 40. 0	40. 0 0. 9	0.9	$\frac{1.7}{2.7}$	2. 6 3. 6	$3.5 \\ 4.6$	4. 4 5. 5	5. 3 6. 4	6.2 7.4	7. 1 8. 3	47 48
9	8.3	9. 2	40. 1	1.0	1.9	2.8	3.8	4.7	5.7	6.7	7.6	8.6	9.6	49
0	39. 2	40.2	41.1	42.0	43.0	43.9	44. 9	45. 9	46.9	47.9	48.9	50.0	51.1	50
1	40.2	1. 2	2. 2	3. 2	4.1	5. 1	6. 2	7. 2	8.2	9.3	50.4	1.5	2.6	51
2	1.3	2.3	3. 3	4.4	5.4	6.4	7. 5	8.6	9.7	50.8	2.0	3.1	4.3	52
3	2.5	3.5	4.6	5.7	6.7	7.8	9.0	50.1	51.3	2.5	3.7	4.9	6.2	53
4	3.8	4.9	6.0	7.1	8.2	$\frac{9.4}{51.1}$	50.6	1.8	3.0	4.3	5.6	6.9	8.3	54
5. 0 5. 5	45. 2 5. 9	46. 3 7. 1	47. 5 8. 3	48. 6 9. 5	49.8 50.7	51.1 2.0	52. 3 3. 3	53. 6 4. 6	54.9 6.0	56. 3 7. 4	57. 7 8. 9	59. 1 60. 4	60. 7 2. 0	55. 5.
6.0	6. 7	7. 9	9.1	50.4	1.6	2. 9	4.3	5.7	7.1	8.6	60.1	1.7	3.4	6.
6.5	7.5	8.8	50.0	1.3	2.6	3.9	5.4	6.8	8.3	9.9	1.5	3. 2	5.0	6.
7.0	8.3	9.6	0.9	2.2	3.6	5.0	6.5	8.0	9.5	61. 2	2.9	4.7	6.6	7.
7.5	49.2	50.5	51.9	53. 2	54.7	56. 2	57.7	59.3	60.9	62.6	64.5	66. 4	68. 5	57.
8.0	50.1	1.5	2.9	4.3	5.8	7.4	8.9	60.6	2.4	4.2	6.2	8.3	70.7	8.
$ \begin{array}{c c} 8.5 \\ 9.0 \end{array} $	$\begin{array}{c} 1.1 \\ 2.2 \end{array}$	$\frac{2.5}{3.6}$	4.0 5.1	5. 5 6. 7	7. 0 8. 3	8. 6 60. 0	60.3	$\frac{2.1}{3.7}$	3. 9 5. 7	6. 0 7. 9	8. 1 70. 3	$70.4 \\ 3.0$	$\begin{bmatrix} 3.1 \\ 6.2 \end{bmatrix}$	8. 9.
9.5	3. 3	4.8	6.4	8.0	9.7	1.5	3.4	5.5	7.7	70.1	$\frac{70.3}{2.8}$	5.9	80.1	9.
0.0	54.4	56.0	57.7	59.4	61. 2	63. 2	65. 2	67. 4	69. 9	$\frac{72.6}{72.6}$	75.8	80.0	90.0	60.
0.5	5.7	7.4	9.1	61.0	2.9	5. 0	7. 2	9.6	72.4	5.8	9.9	90.0	55.0	0.
1.0	7.0	8.8	60.7	2.6	4.7	7.0	9.5	72.3	5.5	9.8	90.0			1.
1.5°	8.5	60.3	2.3	4.4	6.7	9.2	72.0	5.4	9.7	90.0				1.
$\frac{2.0}{2.5}$	60.0	2.0	4.2	6.5	9.0	71.9	$\frac{5.2}{2}$	9.6	90.0					2.
$\frac{2.5}{3.0}$	61. 7 3. 6	63. 9 6. 0	66. 2 8. 6	68. 8 71. 5	71.7	75. 1 9. 4	9.5	90.0						62. 3.
3.5	5.7	8.3	71.3	4.8	9.3	90.0	90.0							3.
4.0	8. 1	71.1	4.6	9.2	90.0	00.0								4.
4.5	70.9	4.4	9.0	90.0										4.

TABLE 40.

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Correction of the Amplitude as observed on the Apparent Horizon.

Lati-						De	eclinatio	n.						Lati-
tude.	00	. 50	100	120	140	16°	180	200	220	240	260	280	30°	tude.
	0	0	0	0	0	0	0	0	0	0	0	0	,	0
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
5	.1	.1	. 1	.1	.1	.1	.1	.1	.1	.1	. 1	.1	.1	5
10	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	10
15 20	.2	. 2	. 2	. 2	$\begin{bmatrix} .2 \\ .2 \end{bmatrix}$	$\frac{\cdot 2}{\cdot 2}$.2	.2	$\frac{.2}{.3}$.2	$\frac{.2}{.3}$.2	$\frac{.2}{.3}$	15 20
	.2	.2	.2	.2			3	.3				0.4		$\frac{20}{24}$
24 28	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	.4	0.4	28
28 32	. 4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	$\frac{28}{32}$
36	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.6	36
38	.5	.5	.5	.5	.6	.6	.6	.6	.6	.6	.6	.7	.7	38
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	40
42	. 6	.6	. 6	.6	.6	. 7	.7	. 7	. 7	.7	.8	.8	.8	42
44	. 6	.6	.7	.7	.7	. 7	.7	.7	.8	.8	.8	.9	. 9	44
46	. 7	.7	.7	.7	. 7	.8	.8	.8	.8	.9	.9	.9	1.0	46
48	.7	.8	.8	.8	.8	.8	.8	.9	9	1.0	1.0	1.0	. 1	48
50	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.1	1.1	1.1	1.3	50
52	.8	.9	.9	.9	.9	1.0	1.0	1.0	.1	.2	. 2	.3	.5	52
54 56	.9 1.0	.9 1.0	1.0	1.0	1.0	$\begin{array}{c} .1 \\ .2 \end{array}$	$\begin{bmatrix} .1 \\ .2 \end{bmatrix}$	$\begin{array}{c} .1 \\ .2 \end{array}$.2	.3	.4	.5	$\frac{.8}{2.2}$	54 56
58	.1	1.0	.2	.2	$\frac{1}{2}$.3	.3	.4	.5	.7	.9	2.3	3. 2	58
60	1.2	$\frac{1.2}{1.2}$	1.3	1.3	1.3	1.4	$\frac{.5}{1.5}$	1.6	$\frac{.0}{1.7}$	2.0	${2.4}$	3.4	0. 2	60
62	.3	.3	.4	.4	.4	.6	.7	.8	2.1	.5	3.5	J. T		62
64	.4	.4	.5	.5	.6	.8	.9	2. 2	.6	3.7	0.0			64
66	.5	.5	.7	.7	.9	2.0	2.3	. 8	3.8					66
68	.6	.7	.9	2.0	2.2	.4	.9	4.0						68
70	1.8	1.9	2.1	2.3	2.6	3.1	4.3							70 72
72	2.0	2.1	.5	.8	3.3	4.6								72
74	.2	.5	3.0	3.5	4.8									74
76	.6	3.0	.8	5. 2										76
78	3.1	.6	5.7		•									78
80	3.8	4.4							-					80

TABLE 41.

			0°	1	lo	•	20		30	1	4°		Prop.
parts 29	M.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine	N. cos.	N. sine	N. cos.	N. sine	N. cos.		2
0	0	00000	100000	01745	99985	03490	99939	05234	99863	06976	99756	60	2
0	1	00029	100000	01774	99984	03519	99938	05263	99861	07005	99754	59	2 2 2 2 2 2 2 2
1	2	00058	100000	01803	99984	03548	99937	05292	99860	07034	99752	58	2
1	3	00087	100000	01832	99983	03577	99936	05321	99858	07063	99750	57	2
2	4	00116	100000	01862	99983	03606	99935	05350	99857	07092	99748	56	2
$\frac{2}{2}$	5	00145	100000	01891	99982	03635	99934	05379	99855	07121	99746	55	2
3	6	00175	100000	01920	99982	03664	99933	05408	99854	07150	99744	54	
3	7	00204	100000	01949	99981	03693	99932	05437	99852	07179	99742	53	2 2 2 2 2 2 2
4	8 9	$00233 \\ 00262$	100000	01978	99980	03723	99931	05466	99851	07208	99740	52	2
5	10	00202	100000	$02007 \\ 02036$	99980	03752 03781	99930	$05495 \\ 05524$	99849	07237 07266	99738	51	2
5	11	00320	99999	02065	99979	03810	99927	05553	99847	07295	99736	50 49	2
6	12	00349	99999	02094	99978	03839	99926	05582	99844	07324	99731	48	9
-6	13	00378	99999	02123	99977	03868	99925	05611	99842				
7	14	00373	99999	$02123 \\ 02152$	99977	03897	99924	05640	99841	$07353 \\ 07382$	99729	47	2 2 2
7	15	00436	99999	02181	99976	03926	99923	05669	99839	07382	99727	46 45	9
8	16	00465	99999	02211	99976	03955	99922	05698	99838	07440	99723	44	1
8	17	00495	99999	02240	99975	03984	99921	05727	99836	07469	99721	43	1
9	18	00524	99999	02269	99974	04013	99919	05756	99834	07498	99719	42	1
9	19	00553	99998	02298	99974	04042	99918	05785	99833	07527	99716	41	1
10	20	00582	99998	02327	99973	04071	99917	05814	99831	07556	99714	40	1
10	21	00611	99998	02356	99972	04100	99916	05844	99829	07585	99712	39	1
11	22	00640	99998	02385	99972	04129	99915	05873	99827	07614	99710	38	i
11	23	00669	99998	02414	99971	04159	99913	05902	99826	07643	99708	37	î
12	24	00698	99998	02443	99970	04188	99912	05931	99824	07672	99705	36	1
12	25	00727	99997	02472	99969	04217	99911	05960	99822	07701	99703	35	1
13	26	00756	99997	02501	99969	04246	99910	05989	99821	07730	99701	34	î
13	27	00785	99997	02530	99968	04275	99909	06018	99819	07759	99699	33	1
14	28	00814	99997	02560	99967	04304	99907	06047	99817	07788	99696	32	1
14	29	00844	99996	02589	99966	04333	99906	06076	99815	07817	99694	31	1
15	30	00873	99996	02618	99966	04362	99905	06105	99813	07846	99692	30	1
15	31	00902	99996	02647	99965	04391	99904	06134	99812	07875	99689	29	1
15	32	00931	99996	02676	99964	04420	99902	06163	99810	07904	99687	28	1
16	33	00960	99995	02705	99963	04449	99901	06192	99808	07933	99685	27	1
$\frac{16}{17}$	34 35	00989	99995	02734	99963	04478	99900	06221	99806	07962	99683	26	1
17	36	$01018 \\ 01047$	99995 99995	02763	99962	04507	99898	06250	99804	07991	99680	25	1
	$\frac{30}{37}$			02792	99961	04536	99897	06279	99803	08020	99678	24	1
18 18	38	01076	99994	02821	99960	04565	99896	06308	99801	08049	99676	23	1
19	39	$01105 \\ 01134$	99994 99994	$02850 \\ 02879$	99959	04594	99894	06337	99799	08078	99673	22	1
19	40	01164	99993		99959	04623	99893	06366	99797	08107	99671	21	1
20	41	01104	99993	02908 02938	99958	04653	99892	06395	99795	08136	99668	20	1
20	42	01193	99993	$02938 \\ 02967$	99956	04682 04711	99890	06424 06453	99793	08165	99666	19	1
$\frac{20}{21}$	43	01251	99992	02996	99955				$\frac{99792}{00700}$	08194	99664	18	1
21	44	01231	99992	03025	99955	$04740 \\ 04769$	99888 99886	06482	99790	$08223 \\ 08252$	99661	17	1
22	45	01309	99991	03054	99953	04769	99885	$06511 \\ 06540$	99788	$08252 \\ 08281$	99659	16 15	1
22	46	01338	99991	03083	99952	04827	99883	06569	99784	08281	99654	14	$\begin{vmatrix} 1 \\ 0 \end{vmatrix}$
23	47	01367	99991	03112	99952	04856	99882	06598	99782	08339	99652	13	0
23	48	01396	99990	03141	99951	04885	99881	06627	99780	08368	99649	12	ŏ
24	49	01425	99990	03170	99950	04914	99879	06656	99778	08397	99647	11	0
24	50	01454	99989	03199	99949	04943	99878	06685	99776	08426	99644	10	0
25	51	01483	99989	03228	99948	04972	99876	06714	99774	08455	99642	9	0
25	52	01513	99989	03257	99947	05001	99875	06743	99772	08484	99639	8	ő
26	53	01542	99988	03286	99946	05030	99873	06773	99770	08513	99637	7	ő
26	54	01571	99988	03316	99945	05059	99872	06802	99768	08542	99635	6	ŏ
27	55	01600	99987	03345	99944	05088	99870	06831	99766	08571	99632	5	0
27	56	01629	99987	03374	99943	05117	99869	06860	99764	08600	99630	4	ŏ
28	57	01658	99986	03403	99942	05146	99867	06889	99762	08629	99627	3	ŏ
28	58	01687	99986	03432	99941	05175	99866	06918	99760	08658	99625	$\frac{3}{2}$	ŏ
29	59	01716	99985	03461	99940	05205	99864	06947	99758	08687	99622	1	0
29	60	01745	99985	03490	99939	05234	99863	06976	99756	08716	99619	0	0
		77											
		N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	M.	
		81	90	88	0	8	70	Q	60	8	50		
										00			

Parts Par	Prop.		5	0	6	0	. 7	0	8	, 0	9	ю		Prop.
0 1 05745 99617 10482 99449 12216 99251 133946 9923 15672 98761 59 4 1 2 05774 99614 10511 9946 12256 99248 13975 99019 15751 9576 58 4 2 3 08803 99612 10540 99443 12274 99244 14004 99015 15730 98755 57 4 2 5 08860 99607 10597 99437 12331 99237 14061 99000 15787 98746 55 4 3 6 08880 99604 10626 99434 12309 9923 14060 99002 15787 98746 55 4 4 8 08947 99599 10684 99428 12418 99226 14148 98994 15816 98741 54 4 8 08947 99599 10684 99428 12418 99226 14148 98994 15873 98737 53 4 4 9 08976 99596 10713 99421 12476 99229 14177 98990 15902 98728 51 3 5 10 09005 99594 10742 99415 12530 99219 14205 98866 15931 98723 55 3 5 11 09003 99598 10713 99421 12476 99219 14205 98886 15931 98723 55 3 5 11 09003 99598 10712 99415 12504 99215 14205 98886 15931 98723 55 3 6 12 09003 99598 10800 99415 12533 99211 1423 98892 15959 98718 49 3 6 13 09002 99586 10800 99415 12533 99211 1423 98892 15959 98718 49 3 7 14 09121 99583 10855 99406 12620 99200 14339 98965 16074 98700 46 3 8 17 09205 99587 10015 99402 12678 99197 14378 98961 16074 98700 46 3 8 17 09205 99575 10915 99399 12678 99197 14378 98961 16074 98700 46 3 8 17 09205 99577 10015 99399 12678 99197 14378 98961 16074 98700 46 3 8 17 09205 99577 10015 99390 12735 99186 14464 98948 16189 98681 41 3 10 21 09324 99564 11000 99386 12793 99197 14378 98961 16100 98686 42 3 10 21 09324 99564 11000 99386 12793 99178 14551 98936 16218 98676 103 8666 237 2 12 25 09440 99555 11118 99380 12851 99171 14580 9881 16304 98662 37 2 12 25 09494 99555 11118 99380 12851 99171 14580 9881 16304 98662 37 2 12 25 09494 99556 11118 99380 12851 9917 14580 9881 16304 98662 37 2 12 25 09496 99570 11031 99387 12896 99158 14464 98948 16189 98681 41 41 12 08353 99562 11089 99380 12783 99186 14666 98819 16304 98662 37 2 12 25 09496 99557 11031 99380 12785 99186 14666 98819 16304 98662 37 2 12 25 09496 99551 1176 99374 12908 99187 14373 98965 16074 98760 9868 1600 98380 1278 99187 14580 98881 16304 98662 37 2 12 24 09486 99551 1176 993874 12908 99160 14666 98819 16304 98662 37 2 12 25 09496 99577 11037 99380 12859 9	_	M.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.		parts
0 1 05745 99617 10482 99449 12216 99251 133946 9923 15672 98761 59 4 1 2 05774 99614 10511 9946 12256 99248 13975 99019 15751 9576 58 4 2 3 08803 99612 10540 99443 12274 99244 14004 99015 15730 98755 57 4 2 5 08860 99607 10597 99437 12331 99237 14061 99000 15787 98746 55 4 3 6 08880 99604 10626 99434 12309 9923 14060 99002 15787 98746 55 4 4 8 08947 99599 10684 99428 12418 99226 14148 98994 15816 98741 54 4 8 08947 99599 10684 99428 12418 99226 14148 98994 15873 98737 53 4 4 9 08976 99596 10713 99421 12476 99229 14177 98990 15902 98728 51 3 5 10 09005 99594 10742 99415 12530 99219 14205 98866 15931 98723 55 3 5 11 09003 99598 10713 99421 12476 99219 14205 98886 15931 98723 55 3 5 11 09003 99598 10712 99415 12504 99215 14205 98886 15931 98723 55 3 6 12 09003 99598 10800 99415 12533 99211 1423 98892 15959 98718 49 3 6 13 09002 99586 10800 99415 12533 99211 1423 98892 15959 98718 49 3 7 14 09121 99583 10855 99406 12620 99200 14339 98965 16074 98700 46 3 8 17 09205 99587 10015 99402 12678 99197 14378 98961 16074 98700 46 3 8 17 09205 99575 10915 99399 12678 99197 14378 98961 16074 98700 46 3 8 17 09205 99577 10015 99399 12678 99197 14378 98961 16074 98700 46 3 8 17 09205 99577 10015 99390 12735 99186 14464 98948 16189 98681 41 3 10 21 09324 99564 11000 99386 12793 99197 14378 98961 16100 98686 42 3 10 21 09324 99564 11000 99386 12793 99178 14551 98936 16218 98676 103 8666 237 2 12 25 09440 99555 11118 99380 12851 99171 14580 9881 16304 98662 37 2 12 25 09494 99555 11118 99380 12851 99171 14580 9881 16304 98662 37 2 12 25 09494 99556 11118 99380 12851 9917 14580 9881 16304 98662 37 2 12 25 09496 99570 11031 99387 12896 99158 14464 98948 16189 98681 41 41 12 08353 99562 11089 99380 12783 99186 14666 98819 16304 98662 37 2 12 25 09496 99557 11031 99380 12785 99186 14666 98819 16304 98662 37 2 12 25 09496 99551 1176 99374 12908 99187 14373 98965 16074 98760 9868 1600 98380 1278 99187 14580 98881 16304 98662 37 2 12 24 09486 99551 1176 993874 12908 99160 14666 98819 16304 98662 37 2 12 25 09496 99577 11037 99380 12859 9			00716	00610	10459	00459	19197	00255	12017	00027	15612	08760	60	1
1 2 08774 99614 10511 99446 12245 99248 13975 99019 15701 98760 58 4 2 4 08831 99609 10569 99440 12302 99240 14031 99010 15730 98755 57 4 4 08831 99609 105699 99440 12302 99240 14031 99001 15738 98751 56 4 4 08831 99609 105699 99440 12302 99240 14031 99001 15738 98751 55 4 4 08880 99604 10626 99431 12330 99230 14109 99002 15816 98741 54 4 9 08918 9920 10655 99431 12389 99230 14119 98998 15814 5875 98746 55 4 4 9 08976 99599 10684 99428 12418 99220 14141 98994 15873 98732 52 3 1 5 10 09005 99594 10742 99421 12476 99222 14177 98990 15873 98732 52 3 5 11 09043 99599 10771 99418 12504 99222 14177 98990 15902 98728 51 3 3 6 11 0904 99599 10771 99418 12504 99214 14234 98882 15939 98718 49 3 6 12 09003 99588 10800 99415 12533 99211 14234 98882 15939 98718 49 3 6 12 09003 99588 10829 99412 12552 99208 14292 98873 15089 98718 48 3 7 15 0915 99588 10829 99412 12552 99208 14292 98873 15089 98718 48 3 8 16 09179 99588 10887 99406 12259 19209 14320 98896 10017 98709 47 3 8 16 09179 99578 10616 93402 12494 99197 14378 98801 16103 98686 44 3 8 17 0928 9575 10645 93893 128758 99198 14440 98851 15102 98590 43 3 8 16 09179 99578 10616 93402 12494 99197 14378 98801 16103 98666 44 3 8 17 0928 9575 10645 93803 12875 99188 14440 98885 11503 98686 44 3 8 17 0928 9575 10645 93803 12875 99188 14440 98885 11503 98864 14 3 10 20 09256 9557 10028 93835 12858 19917 14528 98840 16103 98664 41 3 10 20 09256 9557 10028 93835 12858 19917 14528 98840 16103 98664 41 3 12 09266 9557 10028 93835 12858 19917 14528 98840 16218 98676 40 3 3 3 12 2 09459 9558 11179 98371 12859 98967 14404 98851 13009 98484 16218 98676 40 3 3 3 12 2 09459 98551 11189 98380 13851 19917 14528 98890 16016 98678 41 1388 98951 14640 98892 16300 98484 16218 98676 40 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		- 1												
1 3 08803 999012 10540 99440 12902 99240 14040 99015 15730 98755 57 44 2 5 08860 99007 10597 99437 12331 99237 14061 99000 15758 98751 56 4 3 6 08889 99007 10597 99437 12331 99237 14061 99000 15758 98766 55 4 4 8 08987 99002 10655 99431 12389 99230 14119 98905 15845 98737 53 4 4 8 08947 99599 10684 99428 12418 99226 14148 98994 15873 98737 53 4 4 9 08976 99596 10713 99421 12476 99229 14177 98990 15902 98728 51 3 5 10 09005 99594 10742 99421 12476 99219 14205 98986 15873 98732 52 3 5 11 09034 99591 10771 99418 12504 99216 14205 98986 15931 98723 55 0 3 6 13 09002 99586 10809 99415 12533 99211 14234 98982 15959 98718 49 3 6 13 09002 99586 10809 99415 12533 99211 14234 98982 15959 98718 49 3 7 14 09121 99583 10800 9940 12591 99204 14329 98987 16017 98709 47 3 8 16 09179 99578 10916 99402 12619 99204 14329 98965 10046 98704 46 3 8 16 09179 99578 10916 99402 12619 99197 14378 98965 10014 98700 46 3 8 17 09208 99575 10945 99399 12678 99198 14407 98867 10132 98690 43 3 8 17 09208 99577 1002 99380 12678 99189 14404 98945 16103 98684 42 3 9 19 09296 99570 11002 99380 12735 99186 14464 98945 16109 98084 42 3 10 20 09295 99567 11031 99380 12735 99185 14464 98945 16109 9868 141 30 10 20 09295 99577 11002 99380 12735 99185 14464 98945 16109 9868 42 3 11 22 08353 99562 11189 93390 12768 99183 14467 98867 10312 98681 41 3 10 20 09295 99570 11002 99380 12735 99185 14464 98945 16189 98681 41 31 11 22 08353 99562 11189 93300 12768 99183 14467 98885 16189 98681 41 41 31 11 22 08353 99562 11189 93300 12768 99183 14467 98885 16189 98681 41 41 31 11 22 08353 99562 11189 93300 12768 99183 14467 98885 16189 98681 41 41 31 12 08353 99562 11189 93300 12768 99184 14781 98984 16189 9868 16189 9868 14189 98891 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 16189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881 18189 98881		2												
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24 50 10164 99482 11898 99290 13629 99067 15356 98814 17078 98531 10 1 25 51 10192 99479 11927 99286 13658 99063 15335 98809 17107 98526 9 1 25 52 10221 99476 11956 99283 13687 99059 15414 98805 17136 98521 8 1 26 53 10250 99473 11985 99279 13716 99055 15442 98800 17166 98516 7 0 26 54 10279 99470 12014 99276 13744 99051 15471 98796 17193 98511 6 0 27 55 10308 99467 12043 99272 13773 99047 15500 98791 17222 98506 5 0 27 56 10337 <											-			
25 51 10192 99479 11927 99286 13658 99063 15385 98809 17107 98526 9 1 25 52 10221 99476 11985 99283 13687 99059 15414 98805 17136 98521 8 1 26 53 10259 99473 11985 99279 13716 99055 15442 98800 17164 98516 7 0 26 54 10279 99470 12014 99276 13744 99055 15471 98796 17193 98511 6 0 27 55 10308 99467 12043 99272 13773 99047 15500 98791 17222 98506 5 0 27 56 10337 99464 12071 99269 13802 99043 15529 98787 17250 98501 4 0 28 57 10366 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td></t<>														1
25 52 10221 99476 11956 99283 13687 99059 15414 98805 17136 98521 8 1 26 53 10250 99473 11985 99279 13716 99055 15442 98800 17164 98516 7 0 26 54 10279 99470 12014 99276 13744 99051 15471 98796 17193 98511 6 0 27 55 10308 99467 12043 99272 13773 99047 15500 98791 17222 98506 5 0 27 56 10337 99464 12071 99269 13802 99047 15500 98791 17222 98506 5 0 28 57 10366 99461 12100 99265 13831 99039 15557 98782 17250 98501 4 0 28 58 10395 99458 12129 99262 13860 99035 15586 98778 17308 98491 2 0 29 59 10424 99455 12158 99258 13889 99031 15615 98773 17336 98486 1 0 29 60 10453 99452 12187 99255 13917 99027 15643 98769 17365 98481 0 0			10104	99479	11927	99290	13658	99067						
26 53 10250 99473 11985 99279 13716 99055 15442 98800 17164 98516 7 0 26 54 10279 99470 12014 99276 13744 99051 15471 98796 17193 98511 6 0 27 55 10338 99467 12043 99272 13773 99047 15500 98791 17222 98506 5 0 28 57 10366 99461 12100 99265 13831 99039 15529 98787 17250 98501 4 0 28 58 10395 99458 12129 99262 13860 99035 15586 98778 17250 98496 3 0 29 59 10424 99455 12158 99258 13880 99035 15586 98778 17336 98486 1 0 29 60 10453 <t< td=""><td>25</td><td>52</td><td>10221</td><td></td><td></td><td>99283</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	25	52	10221			99283								
26 54 10279 99470 12014 99276 13744 99051 15471 98796 17193 98511 6 0 27 55 10338 99467 12043 99272 13773 99047 15500 98791 17222 98506 5 0 28 57 10366 99461 12100 99265 13831 99039 15529 98787 17250 98501 4 0 28 58 10395 99458 12129 99262 13860 99035 15586 98778 17308 98491 2 0 29 59 10424 99455 12158 99258 13889 99031 15615 98773 17336 98486 1 0 29 60 10453 99452 12187 99255 13917 99027 15643 98769 17365 98481 0 0 N. cos. N. sine. N. cos. N. sine. N. cos. N. sine. N. cos. N. sine.	26	53	10250	99473	11985	99279	13716	99055	15442	98800	17164			
27 56 10337 99464 12071 99269 13802 99043 15529 98787 17250 98501 4 0 28 57 10366 99461 12100 99265 13831 99039 15557 98782 17279 98496 3 0 28 58 10395 99458 12129 99262 13860 99035 15586 98778 17308 98491 2 0 29 59 10424 99455 12158 99258 13889 99031 15615 98773 17336 98486 1 0 29 60 10453 99452 12187 99255 13917 99027 15643 98769 17365 98481 0 0 N. cos. N. sine. N.							13744							0
28 57 10366 99461 12100 99265 13831 99039 15557 98782 •17279 98496 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	27										17222			
28 58 10395 99458 12129 99262 13860 99035 15586 98778 17308 98491 2 0 29 59 10424 99455 12158 99258 13889 99031 15615 98773 17336 98486 1 0 29 60 10453 99452 12187 99255 13917 99027 15643 98769 17365 98481 0 0 N. cos. N. sine. M.						99269	13802							
29 59 10424 99455 12158 99258 13889 99031 15615 98773 17336 98486 1 0 29 60 10453 99452 12187 99255 13917 99027 15643 98769 17365 98481 0 0 N. cos. N. cos. N. sine. M.	28			99458		99262							2	
29 60 10453 99452 12187 99255 13917 99027 15643 98769 17365 98481 0 0 N. cos. N. sine. M.	29					99258								
	29	60												
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84° 83° 82° 81° 80°]	1	N. cos.	N. sine.	М.	
			8-	1 º	88	0	8	20	8	10	S	00		

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TABLE 41.

Prop.		10) °	' 11	0	1	20	1:	go	1	4 °		Prop. parts
parts 28	M.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.		6
0	0	17365	98481	19081	98163	20791	97815	22495	97437	24192	97030	60	6
ŏ	1	17393	98476	19109	98157	20820	97809	22523	97430	24220	97023	59	6
ĭ	$\bar{2}$	17422	98471	19138	98152	20848	97803	22552	97424	24249	97015	58	6
1	3	17451	98466	19167	98146	20877	97797	22580	97417	24277	97008	57	6
2	4	17479	98461	19195	98140	20905	97791	22608	97411	24305	97001	56	6
$\begin{bmatrix} 2 \\ 3 \end{bmatrix}$	5	17508	98455	19224	98135	20933	97784	22637	97404	24333	96994	55	6
	6	17537	98450	19252	98129	20962	97778	$\frac{22665}{22693}$	97398	24362	96987	54	5_
$\begin{bmatrix} 3 \\ 4 \end{bmatrix}$	7 8	$17565 \\ 17594$	98445 98440	19281 19309	$98124 \\ 98118$	$20990 \\ 21019$	97772 97766	22722	97391 97384	$24390 \\ 24418$	96980	$\begin{array}{c} 53 \\ 52 \end{array}$	5
4	9	17623	98435	19338	98112	21047	97760	22750	97378	24446	96966	51	5 5 5
$\hat{5}$	10	17651	98430	19366	98107	21076	97754	22778	97371	24474	96959	50	5
5	11	17680	98425	19395	98101	21104	97748	22807	97365	24503	96952	49	5 5
6	12	17708	98420	19423	98096	21132	97742	22835	97358	24531	96945	48	
6	13	17737	98414	19452	98090	21161	97735	22863	97351	24559	96937	47	$\overline{5}$
7	14	17766	98409	19481	98084	21189	97729	22892	97345	24587	96930	46	5
7 7	$\frac{15}{16}$	$17794 \\ 17823$	98404 98399	19509 19538	98079 98073	$21218 \\ 21246$	97723	$22920 \\ 22948$	97338 97331	$24615 \\ 24644$	96923	45 44	5
8	17	17852	98394	19566	98067	$21240 \\ 21275$	97717 97711	$\frac{22948}{22977}$	97325	24672	96909	43	4 4
8	18	17880	98389	19595	98061	21303	97705	23005	97318	24700	96902	42	4
$\frac{3}{9}$	19	17909	98383	$\frac{19623}{19623}$	98056	21331	97698	23033	97311	24728	96894	$\frac{12}{41}$	4
9	20	17937	98378	19652	98050	21360	97692	23062	97304	24756	96887	40	4
10	21	17966	98373	19680	98044	21388	97686	23090	97298	24784	96880	39	4
10	22	17995	98368	19709	98039	21417	97680	23118	97291	24813	96873	38	4
11	23	18023	98362	19737	98033	21445	97673	23146	97284	24841	96866	37	4
11	24	18052	98357	19766	98027	21474	97667	23175	97278	24869	96858	36	4
$\begin{array}{c c} 12 \\ 12 \end{array}$	25 26	18081 18109	98352	19794	98021	$21502 \\ 21530$	97661	23203	97271	24897	96851	35	4
13	27	18138	98347 98341	$\begin{array}{c} 19823 \\ 19851 \end{array}$	98016 98010	21559	97655 97648	$23231 \\ 23260$	97264 97257	$24925 \\ 24954$	96844	34 33	3
13	28	18166	98336	19880	98004	21587	97642	23288	97251	24982	96829	32	3
14	29	18195	98331	19908	97998	21616	97636	23316	97244	25010	96822	31	3 3
14	30	18224	98325	19937	97992	21644	97630	23345	97237	25038	96815	30	3
14	31	18252	98320	19965	97987	21672	97623	23373	97230	25066	96807	29	3
15	32	18281	98315	19994	97981	21701	97617	23401	97223	25094	96800	28	3
15	33	18309	98310	20022	97975	21729	97611	23429	97217	25122	96793	27	3
16 16	34 35	18338 18367	98304 98299	$20051 \\ 20079$	97969 97963	$21758 \\ 21786$	97604	$23458 \\ 23486$	97210 97203	$25151 \\ 25179$	96786	26 25	3
17	36	18395	98294	20108	97958	21814	97598 97592	23514	97196	25207	96771	24	2
17	37	18424	98288	20136	97952	21843	97585	23542	97189	25235	96764	23	
18	38	18452	98283	20165	97946	21871	97579	23571	97182	25263	96756	22	2 2
18	39	18481	98277	20193	97940	21899	97573	23599	97176	25291	96749	21	2
19	40	18509	98272	20222	97934	21928	97566	23627	97169	25320	96742	20	2 2 2
19	41	18538	98267	20250	97928	21956	97560	23656	97162	25348	96734	19	2
	42	18567	98261	20279	97922	21985	97553	23684	97155	25376	96727	18	2
20	43	18595	98256	20307	97916	22013	97547	23712	97148	25404	96719	17	2 2
$\begin{array}{c} 21 \\ 21 \end{array}$	44 45	$18624 \\ 18652$	98250 98245	$20336 \\ 20364$	97910 97905	$22041 \\ 22070$	97541	23740	97141 97134	25432 25460	96712	16 15	2 2
21	46	18681	98240	20393	97899	22070	97534 97528	$23769 \\ 23797$	97134	25488	96697	14	1.
22	47	18710	98234	20421	97893	22126	97521	23825	97120	25516	96690	13	1
22	48	18738	98229	20450	97887	22155	97515	23853	97113	25545	96682	12	1
23	49	18767	98223	20478	97881	22183	97508	23882	97106	25573	96675	11	1
23	50	18795	98218	20507	97875	22212	97502	23910	97100	25601	96667	10	1
24	51	18824	98212	20535	97869	22240	97496	23938	97093	25629	96660	9	1
24 25	52 53	$18852 \\ 18881$	98207 98201	$20563 \\ 20592$	97863 97857	$22268 \\ 22297$	97489 97483	23966 23995	97086	$25657 \\ 25685$	96653	8 7	1 1
25	54	18910	98196	20620	97851	$\frac{22297}{22325}$	97483	23995	97079 97072	25713	96638	6	1
26	55	18938	98190	20649	97845	22353	97470	24051	97065	$\frac{25713}{25741}$	96630	$\frac{-5}{5}$	1
26	56	18967	98185	20677	97839	22382	97463	24079	97058	25769	96623	4	0
27	57	18995	98179	20706	97833	22410	97457	24108	97051	25798	96615	3 2	0
27	58	19024	98174	20734	97827	22438	97450	24136	97044	25826	96608	2	0
28 28	59	19052	98168	20763	97821	22467	97444	24164	97037	25854	96600	1	0
28	60	19081	98163	20791	97815	22495	97437	24192	97030	25882	96593	0	0
		N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine,	N. cos.	N. sine.	N. cos.	N. sine.	м.	
		7	go	78	30	7	70	7	6°	7	50		
				L		·							-

TABLE 41.

Prop.		1	50	10	30	1	7°	1	80	1	90		Prop.
parts 27	M.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	_	parts 9
	_	05000	96593	97564	96126	29237	95630	30902	95106	32557	94552	60	
0	$\begin{array}{c c} 0 \\ 1 \end{array}$	$25882 \\ 25910$	96585	$27564 \\ 27592$	96118	29265	95622	30902	95097	32584	94542	59	9
1	2	25938	96578	27620	96110	29293	95613	30957	95088	32612	94533	58	
1	3	25966	96570	27648	96102	29321	95605	30985	95079	32639	94523	57	9 8 8 8
2	4	25994	96562	27676	96094	29348	95596	31012	95070	32667	94514	56	8
2	5	26022	96555	27704	96086	29376	95588	31040	95061	32694	94504	55	8
3	6	26050	96547	27731	96078	$\frac{29404}{29432}$	95579	31068	95052	$\frac{32722}{32749}$	94495	54	
3 4	7 8	26079 26107	$96540 \\ 96532$	$27759 \\ 27787$	96070 96062	29452	95571 95562	$31095 \\ 31123$	95043	32777	94485	53 52	8
4	9	26135	96524	27815	96054	29487	95554	31151	95024	32804	94466	51	8 8 8 7 7
5	10	26163	96517	27843	96046	29515	95545	31178	95015	32832	94457	50	8
5	11	26191	96509	27871	96037	29543	95536	31206	95006	32859	94447	49	7
5	12	26219	96502	27899	96029	29571	95528	31233	94997	32887	94438	48	
6	13	26247 26275	96494 96486	27927 27955	96021 96013	29599 29626	95519 95511	$31261 \\ 31289$	94988 94979	$32914 \\ 32942$	94428 94418	47	7
6 7	14 15	26303	96479	27983	96005	29654	95502	31316	94979	32942	94409	46 45	7
7	16	26331	96471	28011	95997	29682	95493	31344	94961	32997	94399	44	7 7
8	17	26359	96463	28039	95989	29710	95485	31372	94952	33024	94390	43	6
8	18	26387	96456	28067	95981	29737	95476	31399	94943	33051	94380	42	6
9	19	26415	96448	28095	95972	29765	95467	31427	94933	33079	94370	41	6
9	$\frac{20}{21}$	$26443 \\ 26471$	96440 96433	28123 28150	95964 95956	29793 29821	95459 95450	31454 31482	94924 94915	33106 33134	94361 94351	40 39	. 6
10	22	26500	96425	28178	95948	29849	95441	31510	94916	33161	94342	38	6
10	23	26528	96417	28206	95940	29876	95433	31537	94897	33189	94332	$\cdot 37$	6
11	24	26556	96410	28234	95931	29904	95424	31565	94888	33216	94322	36	5
11	25	26584	96402	28262	95923	29932	95415	31593	94878	33244	94313	35	5
12 12	26 27	26612	96394 96386	28290 28318	95915	29960	95407	31620	94869	33271	94303	34	5 5 5
13	28	26640 26668	96379	28318	95907 95898	29987 30015	95398 95389	$31648 \\ 31675$	94860 94851	33298 33326	94293 94284	33 32	5
13	29	26696	96371	28374	95890	30043	95380	31703	94842	33353	94274	31	5
14	30	26724	96363	28402	95882	30071	95372	31730	94832	33381	94264	30	5
14	31	26752	96355	28429	95874	30098	95363	31758	94823	33408	94254	29	4
14	32	26780	96347	28457	95865	30126	95354	31786	94814	33436	94245	28	4
15 15	33 34	26808 26836	96340 96332	28485 28513	95857 95849	30154 30182	95345	31813	94805	33463	94235	27	4
16	35	26864	96324	28541	95841	30209	95337 95328	31841 31868	94795 94786	33490 33518	94225 94215	26 25	4
16	36	26892	96316	28569	95832	30237	95319	31896	94777	33545	94206	24	4
17	37	26920	96308	28597	95824	30265	95310	31923	94768	33573	94196	23	3
17	38	26948	96301	28625	95816	30292	95301	31951	94758	33600	94186	22	3
18 18	39 40	26976 27004	96293 96285	28652 28680	95807 95799	30320 30348	95293	31979	94749	33627	94176	21	3
18	41	27032	96277	28708	95799	30376	95284 95275	32006 32034	94740 94730	33655 33682	94167 94157	20 19	3 3
19	42	27060	96269	28736	95782	30403	95266	32061	94721	33710	94147	18	3
19	43	27088	96261	28764	95774	30431	95257	32089	94712	33737	94137	17	3
20	44	27116	96253	28792	95766	30459	95248	32116	94702	33764	94127	16	2
20 21	45	27144	96246	28820	95757	30486	95240	32144	94693	33792	94118	15	$\frac{2}{2}$
21	46 47	27172 27200	$96238 \\ 96230$	$28847 \\ 28875$	95749 95740	30514 30542	95231 95222	$\frac{32171}{32199}$	94684	33819 33846	94108 94098	14 13	2
22	48	27228	96222	28903	95732	30570	95213	32227	94665	33874	94088	12	$\frac{2}{2}$
22	49		96214	28931	95724	30597	95204	32254	94656	33901	94078	11	$\frac{2}{2}$
23	50	27284	96206	28959	95715	30625	95195	32282	94646	33929	94068	10	$\tilde{2}$
23	51	27312	96198	28987	95707	30653	95186	32309	94637	33956	94058	9	1
23 24	52 53	27340 27368	$96190 \\ 96182$	29015 29042	95698	30680	95177	32337	94627	33983	94049	8	1
24	54	27396	96174	29070	95690 95681	30708 30736	95168 95159	$32364 \\ 32392$	94618 94609	34011 34038	94039 94029	7	1 1
25	55	27424	96166	29098	95673	30763	95150	32419	94599	34065	94019	$\frac{6}{5}$	$\frac{1}{1}$
25	56	27452	96158	29126	95664	30791	95142	32447	94590	34093	94009	4	1
26	57	27480	96150	29154	95656	30819	95133	32474	94580	34120	93999	3	0
26	58	27508	96142	29182	95647	30846	95124	32502	94571	34147	93989	2	0
27 27	59 60	$27536 \\ 27564$	96134 96126	29209 29237	95639 95630	$30874 \\ 30902$	95115	$32529 \\ 32557$	$94561 \\ 94552$	$\frac{34175}{34202}$	93979 93969	1 0	0
				20201		00002	00100	02007	01002	04202	90909	0	U
		N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	М.	
		74	10	7:	20	71	20	7	10		00		
		.,		<u>'</u>		1	-						

TABLE 41.

Section Color Co	Prop.)	2	0,5	21	ļo	2	20	2	30	2	40		Prop.
0 1 34229 938949 35894 93849 35891 93837 37515 29697 93127 92088 40727 91331 55 1 2 34321 93939 35915 93327 37515 29666 39153 92016 40753 91319 57 2 4 34311 93029 35945 93876 92664 39207 91944 40806 91295 55 3 7 143936 93809 30000 30200 32925 37622 29653 39234 91982 40838 91285 54 4 8 34121 93889 36018 93244 37763 29620 39717 40886 91202 55 51 143457 93889 36108 93232 37781 92568 39344 91948 40913 9125 40966 9122 44 4614 34503 93849 36162 93232 37814 92949 4040 <th>parts 27</th> <th>М.</th> <th>N. sine.</th> <th>N. cos.</th> <th>N. sine.</th> <th>N. cos.</th> <th>N. sine.</th> <th>N. eos.</th> <th>N. sine.</th> <th>N. cos.</th> <th>N. sine.</th> <th>N. cos.</th> <th></th> <th>parts 11</th>	parts 27	М.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. eos.	N. sine.	N. cos.	N. sine.	N. cos.		parts 11
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			N. cos.	N. sine.	M.									
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TABLE 41.

Prop.			250	2	6°	1 9	70	1 5	280	9	.9°	l	Prop.
parts 26	M.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.		parts 14
0	0	42262	90631	43837	89879	45399	89101	46947	88295	48481	87462	60	14
0	1	42288	90618	43863	89867	45425	89087	46973	88281	48506	87448	59	14
1	2	42315	90606	43889 43916	89854 89841	45451 45477	89074 89061	46999 47024	88267	48532 48557	87434	58 57	14
$\begin{array}{c c} 1 \\ 2 \end{array}$	3 4	$42341 \\ 42367$	90582	43942	89828	45503	89048	47050	88254 88240	48583	87406	56	13
2	$\hat{5}$	42394	90569	43968	89816	45529	89035	47076	88226	48608	87391	55	13
3	6	42420	90557	43994	89803	45554	89021	47101	88213	48634	87377	54	13
3	7	42446	90545	44020	89790	45580	89008	47127	88199	48659	87363	53	12
$\begin{bmatrix} 3 \\ 4 \end{bmatrix}$	8	$42473 \\ 42499$	90532 90520	$\frac{44046}{44072}$	89777	45606 45632	88995 88981	47153 47178	88185	48684 48710	87349 87335	52 51	$\begin{array}{ c c }\hline 12\\12\\ \end{array}$
4	10	42525	90507	44098	89752	45658	88968	47204	88158	48735	87321	50	12
5	11	42552	90495	44124	89739	45684	88955	47229	88144	48761	87306	49	11
5	12	42578	90483	44151	89726	45710	88942	47255	88130	48786	87292	48	11
$\begin{array}{c c} 6 \\ 6 \end{array}$	13 14	$42604 \\ 42631$	90470 90458	$\frac{44177}{44203}$	89713 89700	45736 45762	88928 88915	47281 47306	88117 88103	48811 48837	87278 87264	47 46	11 11
7	15	42657	90446	44229	89687	45787	88902	47332	88089	48862	87250	45	111
7	16	42683	90433	44255	89674	45813	88888	47358	88075	48888	87235	44	10
7	17	42709	90421	44281	89662	45839	88875	47383	88062	48913	87221	43	10
8	$\frac{18}{19}$	$\frac{42736}{42762}$	90408	$\frac{44307}{44333}$	89649 89636	45865 45891	88862	$\frac{47409}{47434}$	88048	48938	87207	$\frac{42}{41}$	10
8 9	20	42788	90396	44359	89623	45917	88835	47460	88034 88020	48964 48989	87193 87178	40	10
9	21	42815	90371	44385	89610	45942	88822	47486	88006	49014	87164	39	9
10	22	42841	90358	44411	89597	45968	88808	47511	87993	49040	87150	38	9
10 10	23 24	$42867 \\ 42894$	90346 90334	44437 44464	89584 89571	45994 46020	88795 88782	$47537 \\ 47562$	87979 87965	49065 49090	87136 87121	37 36	9 8
11	$\frac{24}{25}$	42920	90321	44490	89558	46046	88768	47588	87951	49116	87107	35	8
11	26	42946	90309	44516	89545	46072	88755	47614	87937	49141	87093	34	8
12	27	42972	90296	44542	89532	46097	88741	47639	87923	49166	87079	33	8
12 13	28 29	42999 43025	$90284 \\ 90271$	$44568 \\ 44594$	89519 89506	46123 46149	88728 88715	47665	87909	49192	87064	32	7
13	30.	43051	90259	44620	89493	46175	88701	$47690 \\ 47716$	87896 87882	49217 49242	87050 87036	31 30	7 7
13	31	43077	90246	44646	89480	46201	88688	47741	87868	49268	87021	29	7
14	32	43104	90233	44672	89467	46226	88674	47767	87854	49293	87007	28	7
14 15	33 34	43130 43156	90221 90208	44698 44724	89454 89441	$46252 \\ 46278$	88661 88647	47793	87840	49318	86993	27	6
15	35	43182	90196	44750	89428	46304	88634	47818 47844	87826 87812	49344 49369	86978	$\frac{26}{25}$	6
16	36	43209	90183	44776	89415	46330	88620	47869	87798	49394	86949	24	6
16	37	43235	90171	44802	89402	46355	88607	47895	87784	49419	86935	23	5
$\begin{bmatrix} 16 \\ 17 \end{bmatrix}$	38	43261	90158	44828	89389	46381	88593	47920	87770	49445	86921	22	5 5
17	39 40	43287 43313	90146 90133	44854 44880	89376 89363	46407 46433	88580 88566	47946 47971	87756 87743	49470 49495	86906 8689 2	$\frac{21}{20}$	5
18	41	43340	90120	44906	89350	46458	88553	47997	87729	49521	86878	19	4
18	42	43366	90108	44932	89337	46484	88539	48022	87715	49546	86863	18	4
19	43	43392	90095	44958	89324	46510	88526	48048	87701	49571	86849	17	4
19 20	44 45	43418 43445	90082 90070	44984 45010	89311 89298	$46536 \\ 46561$	88512 88499	48073 48099	87687 87673	49596 49622	86834	16 15	4
20	46	43471	90057	45036	89285	46587	88485	48124	87659	49647	86805	14	3
20	47	43497	90045	45062	89272	46613	88472	48150	87645	49672	86791	13	3
21	48	43523	90032	45088	89259	46639	88458	48175	87631	49697	86777	12	3
21 22	49 50	43549 43575	90019 90007	45114 45140	89245 89232	46664 46690	88445 88431	48201 48226	87617	49723	86762	11	3
22	51	43602	89994	45166	89232	46716	88417	$\frac{48226}{48252}$	87603 87589	49748 49773	86748 86733	10 9	$\frac{2}{2}$
23	52	43628	89981	45192	89206	46742	88404	48277	87575	49798	86719	8	2
23 23	53	43654	89968	45218	89193	46767	88390	48303	87561	49824	86704	7	2
$\frac{23}{24}$	$\frac{54}{55}$	$\frac{43680}{43706}$	$\frac{89956}{89943}$	$\frac{45243}{45269}$	89180 89167	$\frac{46793}{46819}$	88377	48328	87546	49849	86690	$\frac{6}{5}$	1
24	56	43733	89930	45295	89153	46844	88363 88349	48354 48379	87532 87518	49874 49899	86675 86661	5 4	1
25	57.	43759	89918	45321	89140	46870	88336	48405	87504	49924	86646	3	1
25	58	43785	89905	45347	89127	46896	88322	48430	87490	49950	86632	2	0
26 26	59 60	43811 43837	89892 89879	45373 45399	89114 89101	$46921 \\ 46947$	88308 88295	48456 48481	87476 87462	49975 50000	86617 86603	1. 0	0
		N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	М.	
		64	lo.	6	80	6	20	6	10	6	0°		

TABLE 41.

Natural Sines and Cosines.

Prop.		30)o	3	1°	3	20	3	go	3	40		Prop.
parts. 25	M.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.		parts.
0	0	50000	86603	51504	85717	52992	84805	54464	83867	55919	82904	60	16
0	1	50025	86588	51529	85702	53017	84789	54488	83851	55943	82887	59	16
1	$\frac{2}{3}$	50050 50076	$86573 \\ 86559$	51554 51579	85687 85672	53041 53066	84774	54513 54537	83835	55968 55992	82871	58	15
$\frac{1}{2}$	4	50101	86544	51604	85657	53091	84743	54561	83804	56016	82855 82839	57 56	15 15
$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	5	50126	86530	51628	85642	53115	84728	54586	83788	56040	82822	55	15
3	6	50151	86515	51653	85627	53140	84712	54610	83772	56064	82806	54	14
3	7	50176	86501	51678	85612	53164	84697	54635	83756	56088	82790	53	14
$\begin{array}{c c} 3 \\ 4 \end{array}$	8	$50201 \\ 50227$	$86486 \\ 86471$	51703 51728	85597 85582	$53189 \\ 53214$	84681	54659 54683	83740 83724	56112 56136	82773 82757	$\frac{52}{51}$	14
4	10	50252	86457	51753	85567	53238	84650	54708	83708	56160	82741	50	13
5	11	50277	86442	51778	85551	53263	84635	54732	83692	56184	82724	49	13
5	12	50302	86427	51803	85536	53288	84619	54756	83676	56208	82708	48	13
5 6	13 14	$50327 \\ 50352$	86413 86398	$51828 \\ 51852$	85521 85506	53312 53337	84604	$54781 \\ 54805$	83660 83645	$56232 \\ 56256$	82692 82675	47	13
6	15	50377	86384	51877	85491	53361	84573	54829	83629	56280	82659	45	$\begin{array}{ c c c }\hline 12\\12\\ \end{array}$
7	16	50403	86369	51902	85476	53386	84557	54854	83613	56305	82643	44	12
7	17	50428	86354	51927	85461	53411	84542	54878	83597	56329	82626	43	11
8	18	50453	86340	$\frac{51952}{51077}$	85446	53435	84526	54902	83581	56353	82610	42	11
8 8	19 20	50478 50503	$86325 \\ 86310$	$51977 \\ 52002$	85431 85416	$53460 \\ 53484$	84511 84495	$54927 \\ 54951$	83565 83549	56377 56401	82593	41	11
9	$\frac{20}{21}$	50528	86295	52002 52026	85401	53509	84480	54931 54975	83533	56401 56425	82577 82561	40 39	11 10
9	22	50553	86281	52051	85385	53534	84464	54999	83517	56449	82544	38	10
10	23	50578	86266	52076	85370	53558	84448	55024	83501	56473	82528	37	10
10	24	50603	86251	52101	85355	53583	84433	55048	83485	56497	82511	36	10
10 11	$\frac{25}{26}$	50628 50654	$86237 \\ 86222$	52126 52151	'85340 85325	$53607 \\ 53632$	84417	55072	83469	56521	82495	35	9
11	$\frac{20}{27}$	50679	86207	52175	85310	53656	84402 84386	55097 55121	83453 83437	56545 56569	82478 82462	34 33	9 9
12	28	50704	86192	52200	85294	53681	84370	55145	83421	56593	82446	32	9
12	29	50729	86178	52225	85279	53705	84355	55169	83405	56617	82429	31	8
13	30	50754	86163	52250	85264	53730	84339	55194	83389	56641	82413	30	8
13 13	31 32	50779 50804	$86148 \\ 86133$	$52275 \\ 52299$	85249 85234	53754 53779	84324 84308	$55218 \\ 55242$	83373 83356	56665	82396 82380	29 28	8 7
14	33	50829	86119	52324	85218	53804	84292	55266	83340	56689 56713	82363	$\frac{26}{27}$	7
14	34	50854	86104	52349	85203	53828	84277	55291	83324	56736	82347	26	7
15	35	50879	86089	52374	85188	53853	84261	55315	83308	56760	82330	25	7
15	$\frac{36}{27}$	50904	86074	52399	85173	53877	84245	55339	83292	56784	82314	$\frac{24}{20}$	6_
15 16	37 38	50929 50954	86059 86045	$52423 \\ 52448$	85157 85142	53902 53926	84230 84214	55363 55388	83276 83260	$56808 \\ 56832$	82297 82281	$\begin{array}{c} 23 \\ 22 \end{array}$	6
16	39	50979	86030	52473	85127	53951	84198	55412	83244	56856	82264	21	6
17	40	51004	86015	52498	85112	53975	84182	55436	83228	56880	82248	20	5
17	41	51029	86000	52522	85096	54000	84167	55460	83212	56904	82231	19	5 5 5
18	$\frac{42}{42}$	51054	85985	52547	85081	54024	84151	55484	83195	56928	82214	18	
18 18	43 44	51079 51104	85970 85956	$52572 \\ 52597$	85066 85051	54049 54073	84135 84120	55509 55533	83179 83163	56952 56976	82198 82181	17 16	5 4
19	45	51129	85941	52621	85035	54097	84104	55557	83147	57000	82165	15	4
19	46	51154	85926	52646	85020	54122	84088	55581	83131	57024	82148	14	4
20	47	51179	85911	52671	85005	54146	84072	55605	83115	57047	82132	13	3
$\frac{20}{20}$	48	51204	85896	52696	84989	54171	84057	55630	83098	57071	82115	$\frac{12}{11}$	3
$\frac{20}{21}$	49 50	51229 51254	85881 85866	$52720 \\ 52745$	84974 84959	$54195 \\ 54220$	84041 84025	$55654 \\ 55678$	83082 83066	57095 57119	82098 82082	11 10	3
21	51	51279	85851	52770	84943	54244	84009	55702	83050	57113	82065	9	2
22	52	51304	85836	52794	84928	5426 9	83994	55726	83034	57167	82048	8	2 2
$\begin{bmatrix} 22 \\ 23 \end{bmatrix}$	53	51329	85821	52819	84913	54293	83978	55750	83017	57191	82032	7	2
$\frac{23}{23}$	$\frac{54}{55}$	$\frac{51354}{51379}$	85806	52844	84897	54317	83962	55775	83001	57215	82015	$\frac{6}{5}$	2
23	56	51404	$85792 \\ 85777$	$52869 \\ 52893$	84882 84866	54342 54366	83946 83930	55799 55823	82985 82969	57238 57262	81999 81982	4	1 1
24	57	51429	85762	52918	84851	54391	83915	55847	82953	57286	81965	3	1
24	58	51454	85747	52943	84836	54415	83899	55871	82936	57310	81949	2	1
$\begin{vmatrix} 25 \\ 25 \end{vmatrix}$	59 60	51479 51504	85732 85717	$52967 \\ 52992$	84820	54440	83883	55895	82920	57334	81932	1	0
		01001	00111	04002	84805	54464	83867	55919	82904	57358	81915	U	0
		N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	M.	
	_	59	ю .	58	30	5	70		go		50		
<u> </u>				90			•			9			

TABLE 41.

Prop.		3	50	36	30	3	70	3	30	3	90		Prop.
23	М.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.		18
0	0	57358	81915	58779	80902	60182	79864	61566	78801	62932	77715	60	18
0	1	57381	81899	58802	80885	60205	79846	61589	78783	62955	77696	59	18
1	3	$57405 \\ 57429$	81882 81865	58826 58849	80867 80850	$60228 \\ 60251$	79829 79811	$61612 \\ 61635$	7876 5 78747	$62977 \\ 63000$	77678	58 57	17 17
$\frac{1}{2}$	4	57453	81848	58873	80833	60274	79793	61658	78729	63022	77641	56	17
2	5	57477	81832	58896	80816	60298	79776	61681	78711	63045	77623	55	$\hat{17}$
2	_6	57501	81815	58920	80799	60321	79758	61704	78694	63068	77605	54	16_
3	7	57524	81798	58943	80782	60344	79741	61726	78676	63090	77586	53	16
3 3	8 9	57548	81782	58967	80765	60367	79723	61749	78658	63113	77568	52	16
4	10	57572 57596	81765 81748	58990 59014	80748 80730	60390 60414	79688	$61772 \\ 61795$	78640 78622	$63135 \\ 63158$	77550	51 50	15 15
$\hat{4}$	11	57619	81731	59037	80713	60437	79671	61818	78604	63180	77513	49	$\tilde{15}$
5	12	57643	81714	59061	80696	60460	79653	61841	78586	63203	77494	48	14
5	13	57667	81698	59084	80679	60483	79635	61864	78568	63225	77476	47	14
5	14	57691	81681	59108	80662	60506	79618	61887	78550	63248	77458	46	14
6 6	15 16	57715 57738	81664 81647	59131 59154	80644 80627	60529 60553	79600 79583	$61909 \\ 61932$	78532 78514	63271 63293	77439 77421	45 44	14 13
7	17	57762	81631	59178	80610	60576	79565	61955	78496	63316	77402	43	13
7	18	57786	81614	59201	80593	60599	79547	61978	78478	63338	77384	42	13
7	19	57810	81597	59225	80576	60622	79530	62001	78460	63361	77366	41	12
8	20	57833	81580	59248	80558	60645	79512	62024	78442	63383	77347	40	12
8 8	$\begin{array}{c} 21 \\ 22 \end{array}$	57857 57881	81563 81546	$59272 \\ 59295$	80541 80524	60668 60691	79494	62046 62069	78424 78405	$63406 \\ 63428$	77329 77310	39 38	$\frac{12}{11}$
9	23	57904	81530	59318	80507	60714	79459	62092	78387	63451	77292	37	11
9	24	57928	81513	59342	80489	60738	79441	62115	78369	63473	77273	36	îî
10	25	57952	81496	59365	80472	60761	79424	62138	78351	63496	77255	35	11
10	26	57976	81479	59389	80455	60784	79406	62160	78333	63518	77236	34	10
10	27	57999	81462	59412	80438	60807	79388	62183	78315	63540	77218	33	10
11 11	$\begin{array}{c c}28\\29\end{array}$	58023 58047	81445 81428	59436 59459	80420 80403	60830 60853	79371 79353	$62206 \\ 62229$	78297 78279	63563 63585	77199	$\frac{32}{31}$	10 9
12	30	58070	81412	59482	80386	60876	79335	62251	78261	63608	77162	30	9
12	31	58094	81395	59506	80368	60899	79318	62274	78243	63630	77144	$\frac{30}{29}$	9
12	32	58118	81378	59529	80351	60922	79300	62297	78225	63653	77125	28	8
13	33	58141	81361	59552	80334	60945	79282	62320	78206	63675	77107	27	8
13 13	34 35	58165 58189	81344 81327	59576 59599	80316	60968	79264 79247	62342	78188	63698	77088	$\frac{26}{25}$	8
14	36	58212	81310	59622	80299 80282	60991	79229	$62365 \\ 62388$	78170 78152	$63720 \\ 63742$	77051	24	.7
14	37	58236	81293	59646	80264	61038	79211	62411	78134	63765	77033	23	7
15	38	58260	81276	59669	80247	61061	79193	62433	78116	63787	77014	22	7
15	39	58283	81259	59693	80230	61084	79176	62456	78098	63810	76996	21	6
15	40	58307	81242	59716	80212	61107	79158	62479	78079	63832	76977	20	6
16 16	41 42	58330 58354	81225 81208	59739 59763	80195 80178	61130 61153	79140	$62502 \\ 62524$	78061 78043	$63854 \\ 63877$	76959 76940	19 18	6 5
16	43	58378	81191	59786	80160	61176	79105	62547	78025	63899	76921	17	5
17	44	58401	81174	59809	80143	61199	79087	62570	78023	63922	76903	16	5
17	45	58425	81157	59832	80125	61222	79069	62592	77988	63944	76884	15	5 5
18	46	58449	81140	59856	80108	61245	79051	62615	77970	63966	76866	14	4
18 18	47 48	$58472 \\ 58496$	81123 81106	59879 59902	80091 80073	$61268 \\ 61291$	79033 79016	62638 62660	77952	63989	76847 76828	13 12	4 4
$\frac{10}{19}$	49	58519	81089	59926	80056	61314	78998	62683	$\frac{77934}{77916}$	64011		$\frac{12}{11}$	3
19	50	58543	81072	59949	80038	61337	78980	62706	77897	64033 64056	76810 76791	10	3
20	51	58567	81055	59972	80021	61360	78962	62728	77879	64078	76772	9	
20	52	58590	81038	59995	80003	61383	78944	62751	77861	64100	76754	8	3 2 2
20 21	53 54	58614	81021	60019	79986	61406	78926	62774	77843	64123	76735	7	$\frac{2}{2}$
$\frac{21}{21}$	$\frac{54}{55}$	$\frac{58637}{58661}$	81004 80987	60042	$\frac{79968}{79951}$	61429	78908	62796	77824	64145	76717	$\frac{6}{5}$	$\frac{2}{2}$
21	56	58684	80970	60089	79934	61451 61474	78891 78873	$62819 \\ 62842$	77806 77788	64167 64190	76698 76679	5 4	1
22	57	58708	80953	60112	79916	61497	78855	62864	77769	64212	76661	3	i
22	58	58731	80936	60135	79899	61520	78837	62887	77751	64234	76642	2	1
23 23	59	58755	80919	60158	79881	61543	78819	62909	77733	64256	76623	1	0
20	60	58779	80902	60182	79864	61566	78801	62932	77715	64279	76604	0	0
		N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	M.	
			40	5			20]	10		00		
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TABLE 41.

Prop.		4)o	4:	10	4	120	43	30	4	4 °		Prop.
parts 22	М.	N. sine.	N. cos.	N. sinc.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.		parts 19
0	0	64279	76604	65606	75471	66913	74314	68200	73135	69466	71934	60	19
ŏ	1	64301	76586	65628	75452	66935	74295	68221	73116	69487	71934	59	19
1	2	64323	76567	65650	75433	66956	74276	68242	73096	69508	71894	58	18
1	3	64346	76548	65672	75414	66978.	74256	68264	73076	69529	71873	57	18
$\frac{1}{2}$	$\frac{4}{5}$	64368 64390	$76530 \\ 76511$	$65694 \\ 65716$	75395 75375	$66999 \\ 67021$	74237 74217	$68285 \\ 68306$	73056	69549 69570	71853	56	18 17
$\frac{2}{2}$	6	64412	76492	65738	75356	67043	74198	68327	73016	69591	71813	55 54	17
3	7	64435	76473	65759	75337	67064	74178	68349	72996	69612	71792	53	17
3	8	64457	76455	65781	75318	67086	74159	68370	72976	69633	71772	52	16
$\begin{bmatrix} 3 \\ 4 \end{bmatrix}$	9 10	64479 64501	$76436 \\ 76417$	$65803 \\ 65825$	75299 75280	67107	74139	68391	72957	69654	71752	51	16
4	11	64524	76398	65847	75261	67129 67151	74120 74100	$68412 \\ 68434$	72937 72917	69675 69696	71732	50 49	$\begin{array}{c} 16 \\ 16 \end{array}$
4	12	64546	76380	65869	75241	67172	74080	68455	72897	69717	71691	48	15
5	13	64568	76361	65891	75222	67194	74061	68476	72877	69737	71671	47	15
5	14	64590	76342	65913	75203	67215	74041	68497	72857	69758	71650	46	15
6	15	64612	76323	65935	75184	67237	74022	68518	72837	69779	71630	45	14
6	16 17	64635 64657	$76304 \\ 76286$	65956 65978	75165 75146	$67258 \\ 67280$	74002	$68539 \\ 68561$	$72817 \\ 72797$	69800 69821	71610	44 43	14 14
7	18	64679	76267	66000	75126	67301	73963	68582	72777	69842	71569	43	13
7	19	64701	76248	$\frac{-66022}{}$	75107	67323	73944	68603	72757	69862	71549	41	13
7	20	64723	76229	66044	75088	67344	73924	68624	72737	69883	71529	40	13
8	21	64746	76210	66066	75069	67366	73904	68645	72717	69904	71508	39	12
8 8	$\frac{22}{23}$	64768 64790	$76192 \\ 76173$	66088 66109	75050 75030	67387 67409	73885	68666	72697	69925	71488	38	12
9	$\frac{23}{24}$	64812	76154	66131	75030	67409	73865 73846	68688 68709	72677 72657	69946 69966	71468	37 36	12 11
9	$\frac{21}{25}$	64834	76135	66153	74992	67452	73826	68730	72637	69987	71427	35	11
10	26	64856	76116	66175	74973	67473	73806	68751	72617	70008	71407	34	11
10	27	64878	76097	66197	74953	67495	73787	68772	72597	70029	71386	33	10
$\begin{array}{c c} 10 \\ 11 \end{array}$	28 29	64901 64923	$76078 \\ 76059$	66218	74934	67516	73767	68793	72577	70049	71366	32	10
11	30	64945	76059 76041	$66240 \\ 66262$	74915 74896	67538	73747	68814 - 68835	72557 72537	70070 70091	71345	31 30	10 10
11	31	64967	76022	66284	74876	67580	73708	68857	72517	70112	71305	$\frac{30}{29}$	9
12	32	64989	76003	66306	74857	67602	73688	68878	72497	70132	71284	$\frac{28}{28}$	9
12	33	65011	75984	66327	74838	67623	73669	68899	72477	70153	71264	27	9
12 13	34 35	65033	75965	66349	74818	67645	73649	68920	72457	70174	71243	26	8
13	36	65055 65077	$75946 \\ 75927$	66371 66393	74799 74780	67666 67688	73629 73610	$68941 \\ 68962$	$72437 \\ 72417$	$70195 \\ 70215$	71223 71203	$\frac{25}{24}$	8
14	37	65100	75908	66414	74760	67709	$\frac{73010}{73590}$	68983	72397	70213	71182	$\frac{24}{23}$	7
14	38	65122	75889	66436	74741	67730	73570	69004	72377	70257	71162	22	7
14	39	65144	75870	66458	74722	67752	73551	69025	72357	70277	71141	21	7
15 15	40	65166	75851	66480	74703	67773	73531	69046	72337	70298	71121	20	6
15	41 42	65188 65210	$75832 \\ 75813$	$66501 \\ 66523$	74683 74664	67795	73511	69067	72317	70319	71100	19	6
16	43	65232	$\frac{75794}{75794}$	66545	74644	$\frac{67816}{67837}$	$\frac{73491}{73472}$	69088	$\frac{72297}{72277}$	70339	$\frac{71080}{71059}$	18	$\frac{6}{5}$
16	44	65254	75775	66566	74625	67859	73452	69130	72257	70381	71039	16	5
17	45	65276	75756	66588	74606	67880	73432	69151	72236	70401	71019	15	5
17	46	65298	75738	66610	74586	67901	73413	69172	72216	70422	70998	14	4
17 18	47 48	$65320 \\ 65342$	75719	66632	74567	67923	73393	69193	72196	70443	70978	13	4
18	49	65364	$\frac{75700}{75680}$	$\frac{66653}{66675}$	$\frac{74548}{74528}$	$\frac{67944}{67965}$	73373	69214	72176	70463	$\frac{70957}{70937}$	$\frac{12}{11}$	$\frac{4}{3}$
18	50	65386	75661	66697	74528	67965	73353 73333	$69235 \\ 69256$	$72156 \\ 72136$	70484	70937	11 10	3
19	51	65408	75642	66718	74489	68008	73314	69277	72116	70525	70896	9	3
19	52	65430	75623	66740	74470	68029	73294	69298	72095	70546	70875	8	3
$\begin{vmatrix} 19 \\ 20 \end{vmatrix}$	53 54	65452	75604	66762	74451	68051	73274	69319	72075	70567	70855	7	2
$\frac{20}{20}$	$\frac{54}{55}$	$\frac{65474}{65496}$	$\frac{75585}{75566}$	66805	$\frac{74431}{74412}$	68072	73254	69340	72055	70587	70834	_6	2
21	56	65518	75547	66827	74392	68093 68115	$73234 \\ 73215$	$69361 \\ 69382$	72035 72015	70608 70628	70813 70793	5 4	2 1
21	57	65540	75528	66848	74373	68136	73195	69403	71995	.70649	70772	3	1
21	58	65562	75509	66870	74353	68157	73175	69424	71974	70670	70752	2	1
22 22	59 60	65584 65606	$75490 \ 75471$	66891 66913	74334 74314	68179 68200	73155 73135	69445 69466	71954 71934	70690 70711	70731 70711	1 0	0
													-
		N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N. cos.	N. sine.	N.cos.	N. sine.	М.	
		49	0	4	80	4	170	40	go .	4	50		

TABLE 42.

[Page 755

Logarithms of Numbers.

No. 1-	100.						L	og. 0.000	002.00000.
No.	Log.	No.	Log.	No.	Log.	No.	Log.	No.	Log.
1	0,00000	21	1,32222	41	1.61278	61	1.78533	81	1.90849
$\bar{2}$	0.30103	22	1.34242	42	1.62325	62	1.79239	82	1.91381
3	0.47712	23	1.36173	43	1.63347	63	1.79934	83	1.91908
	0.60206	24	1.38021	44	1.64345	64	1.80618	84	1.92428
5	0.69897	25	1.39794	45.	1.65321	65	1.81291	85	1.92942
6	0, 77815	26	1.41497	46	1.66276	66	1.81954	86	1.93450
7	0.84510	27	1.43136	47	1.67210	67	1.82607	87	1.93952
8	0.90309	28	1.44716	48	1.68124	68	1.83251	88	1.94448
9	0.95424	29	1.46240	49	1.69020	69	1.83885	89	1.94939
10	1.00000	30	1.47712	50	1.69897	70	1. 84510	90	1.95424
11	1,04139	31	1,49136	51	1.70757	71	1.85126	91	1.95904
12	1.07918	32	1.50515	52	1.71600	72	1.85733	92	1.96379
13	1.11394	33	1.51851	53	1.72428	73	1.86332	93	1.96848
14	1.14613	34	1.53148	54	1.73239	74	1.86923	94	1.97313
15	1.17609	35	1.54407	. 55	1.74036	75	1.87506	95	1.97772
16	1, 20412	36	1,55630	56	1.74819	76	1.88081	96	1.98227
17	1. 23045	37	1.56820	57	1.75587	77	1.88649	97	1.98677
18	1.25527	38	1.57978	58	1.76343	78	1.89209	98	1.99123
19	1,27875	39	1.59106	59	1.77085	79	1.89763	99	1.99564
20	1.30103	40	1.60206	60	1.77815	80	1,90309	100	2.00000

Pa	ge 756]				TAF	BLE 4	2.						
				Lo	garithm	s of Nu	mbers.						
No.	1001600									Log. 00	0000-	204	12.
No.	0	1	2	3	4	5	6	7	8,	9			
100	00000	00043	00087	00130	00173	00217	00260	00303	00346	00389		43	42
101	00432	00475	00518	00561	00604	00647	00689	00732	00775	00817	1	4	4
102 103	$00860 \\ 01284$	$00903 \\ 01326$	00945 01368	00988 01410	01030 01452	$01072 \\ 01494$	$ \begin{array}{c} 01115 \\ 01536 \\ \end{array}$	01157	01199	01242		9	8
103	01703	$01320 \\ 01745$	01787	01828	01432	01912	01953	$01578 \\ 01995$	01620 02036	$01662 \\ 02078$	$\begin{vmatrix} 2\\3\\4 \end{vmatrix}$	13	13
$\frac{104}{105}$	02119	$-\frac{01140}{02160}$	02202	02243	02284	02325	02366	02407	02449	02490	4	17	17
106	02531	02572	02612	02653	02694	02325	02300	02816	02857	02490	5	22	21
107	02938	02979	03019	03060	03100	03141	03181	03222	03262	03302	6.	26	25
108	03342	03383	03423	03463	03503	03543	03583	03623	03663	03703	7	30	29
109	03743	03782	03822	03862	03902	03941	03981	04021	04060	04100	8 9	34	34
110	04139	04179	04218	04258	04297	04336	04376	04415	04454	04493	-	1	'
111	04532	04571	04610	04650	04689	04727	04766	04805	04844	04883	l	41	40
112 113	$04922 \\ 05308$	$04961 \\ 05346$	$04999 \\ 05385$	$05038 \\ 05423$	$05077 \\ 05461$	05115 05500	05154 05538	05192 05576	05 2 31 05614	05269	1	4	4
114	05690	05729	05767	05805	05843	05881	05918	05956	05994	05652 06032	3	8 12	8 12
115	06070	06108	06145	06183	06221	06258	06296	06333	06371	06408	4	16	16
116	06446	06483	06521	06558	06595	06633	06670	06707	067.14	06781	5	21	20
117	06819	06856	06893	06930	06967	07004	07041	07078	07115	07151	6	25	24
118	07188	07225	07262	07298	07335	07372	07408	07445	07482	07518	7	29	28
119	07555	07591	07628	07664	07700	07737	07773	07809	07846	07882	8	33	32
120	07918	07954	07990	08027	08063	08099	08135	08171	08207	08243	9	37	36
$\frac{121}{122}$	08279 08636	08314	08350	08386	08422	08458	08493	08529	08565	08600	1	39	38
$\frac{122}{123}$	08991	$08672 \\ 09026$	$08707 \\ 09061$	$08743 \\ 09096$	08778 09132	08814 09167	$08849 \\ 09202$	08884	08920	08955	1	4	4
$\begin{array}{c} 123 \\ 124 \end{array}$	09342	09377	09412	09447	09132	09517	09552	09237 09587	$09272 \\ 09621$	09307 09656	2	8	8
125	09691	09726	09760	09795	09830	09864	09899	09934	09968	10003	3 4 5	12	11
126	10037	10072	10106	10140	10175	10209	10243	10278	10312	10346	4	16 20	15 19
127	10380	10415	10449	10483	10517	10551	10585	10619	10653	10687	6	23	23
128	10721	10755	10789	10823	10857	10890	10924	10958	10992	11025	7	27	27
129	11059	11093	11126	11160	11193	11227	11261	11294	11327	11361	8	31	30
130	11394	11428	11461	11494	11528	11561	11594	11628	11661	11694	9	35	34
$\frac{131}{132}$	$\begin{array}{c c} 11727 \\ 12057 \end{array}$	$\frac{11760}{12090}$	$11793 \\ 12123$	$\frac{11826}{12156}$	$11860 \\ 12189$	$11893 \\ 12222$	11926	11959	11992	12024		37	36
133	12385	12418	$\frac{12123}{12450}$	12483	12516	12548	$12254 \\ 12581$	$12287 \\ 12613$	$12320 \\ 12646$	$12352 \\ 12678$	1	4	4
134	12710	12743	$\frac{12400}{12775}$	12808	12840	12872	12905	12937	12969	13001	2	7	7
135	13033	13066	13098	13130	13162	13194	13226	13258	13290	13322	3	11	11
136	13354	13386	13418	13450	13481	13513	13545	13577	13609	13640	5	15	14
137	13672	13704	13735	13767	13799	13830	13862	13893	13925	13956	5	19 22	18
138	13988	14019	14051	14082	14114	14145	14176	14208	14239	14270	6 7	26	22 25
139	14301	14333	14364	14395	14426	14457	14489	14520	14551	14582	8	30	29
140	14613	14644	14675	14706	14737	14768	14799	14829	14860	14891	9	33	32
$\begin{array}{c} 141 \\ 142 \end{array}$	$\begin{array}{c c} 14922 \\ 15229 \end{array}$	$\frac{14953}{15259}$	14983 15290	$15014 \\ 15320$	15045 15351	$15076 \\ 15381$	15106 15412	$\frac{15137}{15442}$	'.5168 15473	15198		35	34
143	15534	15564	15594	15625	15655	15685	15715	15746	15776	15503 15806	1	4	3
144	15836	15866	15897	15927	15957	15987	16017	16047	16077	16107	2	7	7
145	16137	16167	16197	16227	16256	16286	16316	16346	16376	16406	2 3	· 11	10
146	16435	16465	16495	16524	16554	16584	16613	16643	16673	16702	4	14	14
147	16729	16761	16701	10000								10	177

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No.

TABLE 42.

No	o. 1600——	-2200.							1	og. 20412		-34242	2.
No.	0	1	2	3	4	5	6	. 7	8	9			
160	20412	20439	. 20466	20493	20520	20548	20575	20602	20629	20656	-	91	Lan
161	20683	20710	20737	$20763 \\ 21032$	20790	20817	20844	20871	20898	20925	_	31	30
162	$20952 \\ 21219$	20978 21245	$21005 \\ 21272$	$21032 \\ 21299$	$21059 \\ 21325$	$21085 \\ 21352$	$21112 \\ 21378$	$21139 \\ 21405$	$21165 \\ 21431$	21192 21458	$\frac{1}{2}$	$\frac{3}{6}$	$\frac{3}{6}$
$\frac{163}{164}$	21219	21511	$\frac{21272}{21537}$	21299	21520	21617	21643	21669	21696	21722	3	9	9
165	21748	$\frac{21011}{21775}$	21801	21827	$\frac{21854}{21854}$	21880	21906	$\frac{21933}{21932}$	$\frac{21958}{21958}$		4	12	12
166	22011	22037	22063	22089	22115	22141	22167	22194	22220	$21985 \\ 22246$	5	16	15
167	22272	22298	22324	22350	22376	22401	22427	22453	22479	22505	6	19	18
168	22531	22557	22583	22608	22634	22660	22686	22712	22737	22763	7	22	21
169	22789	22814	22840	22866	22891	22917	22943	22968	22994	23019	8	25 28	$\begin{array}{ c c }\hline 24\\ 27\end{array}$
170	23045	23070	23096	23121	23147	23172	23198	23223	23249	23274			,
171	23300	23325	23350	23376	$23401 \\ 23654$	23426	23452	23477	23502	23528		29	28
$\frac{172}{173}$	23553 23805	23578 23830	23603 23855	$23629 \\ 23880$	23905	$23679 \\ 23930$	$23704 \\ 23955$	23729 23980	$23754 \\ 24005$	$23779 \\ 24030$	1	3	3
174	24055	24080	24105	24130	24155	24180	24204	24229	24254	24279	$\frac{2}{3}$	6 9	8
175	24304	24329	24353	24378	24403	24428	24452	24477	24502	24527	4	12	11
176	24551	24576	24601	24625	24650	24674	24699	24724	24748	24773	$\overline{5}$	15	14
177	24797	24822	24846	24871	24895	24920	24944	24969	24993	25018	6	17	17
178	25042	25066	25091	25115	25139	25164	25188	25212	25237	25261	7	20	20
179	25285	25310	25334	25358	25382	25406	25431	25455	25479	25503	8	23	22
180	25527	25551	25575	25600	25624	25648	25672	25696	25720	25744	9	26	25
181	25768	25792	25816	25840	25864	25888	25912	25935	25959	25983		27	26
182	26007	26031	26055	26079	26102	26126	26150	26174	26198	26221	1	3	3
183 184	$26245 \\ 26482$	26269 26505	$26293 \\ 26529$	$26316 \\ 26553$	$26340 \\ 26576$	26364 26600	$26387 \\ 26623$	$26411 \\ 26647$	$26435 \\ 26670$	$26458 \\ 26694$	2	5	5
185	26717	26741	$\frac{26764}{26764}$	26788	26811	26834	26858	26881	26905	26928	3	8	8
186	26951	26975	26998	27021	27045	27068	27091	27114	27138	27161	4	11	10
187	27184	27207	27231	27254	27277	27300	27323	27346	27370	27393	5	14	13
188	27416	27439	27462	27485	27508	27531	27554	27577	27600	27623	6 7	16 19	$\begin{array}{ c c }\hline 16\\18\\ \end{array}$
189	27646	27669	27692	27715	27738	27761	27784	27807	27830	27852	8	22	21
190	27875	27898	27921	27944	27967	27989	28012	28035	28058	28081	$\tilde{9}$	24	23
191	28103	28126	28149	28171	28194	28217	28240	28262	28285	28307		25	24
192	28330	28353	28375	28398	28421	28443	28466	28488	28511	28533	1	3	2
193 - 194	28556 28780	28578 28803	$28601 \\ 28825$	$28623 \\ 28847$	$28646 \\ 28870$	28668 28892	28691 28914	28713 28937	$28735 \\ 28959$	28758 28981	$\frac{1}{2}$	5	5
195	29003	29026	29048	29070	29092	29115	$\frac{20314}{29137}$	29159	29181	29203	$\frac{2}{3}$	8	7
196	29226	29248	29270	29292	29314	29336	29358	29380	29403	29425	4	10	10
197	29447	29469	29491	29513	29535	29557	29579	29601	29623	29645	5	13	12
198	29667	29688	29710	29732	29754	29776	29798	29820	29842	29863	6	15	14
199	29885	29907	29929	29951	29973	29994	30016	30038	30060	30081	7 8	18 20	17 19
200	30103	30125	30146	30168	30190	30211	30233	30255	30276	30298	9	23	22
201	30320	30341	30363	30384	30406	30428	30449	30471	30492	30514	-	-	-
202 203	30535	30557 30771	30578	30600 30814	$\frac{30621}{30835}$	30643	30664	30685	30707	30728		23	22
203	30750 30963	30771	$30792 \\ 31006$	30814	31048	30856 31069	$30878 \\ 31091$	30899 31112	30920 31133	30942 31154	1	2	$\frac{2}{4}$
$\frac{204}{205}$	31175	31197	31218	31239	31260	31281	31302	31323	31345	31366	3	5	4 7
206	31387	31408	31429	31450	31471	31492	31513	31534	31555	31576	4	9	9
207	31597	31618	31639	31660	31681	31702	31723	31744	31765	31785	5	12	11
208	31806	31827	31848	31869	31890	31911	31931	31952	31973	31994	6	14	13
209	32015	32035	32056	32077	32098	32118	32139	32160	32181	32201	7	16	15
210	32222	32243	32263	32284	32305	32325	32346	32366	32387	32408	8	18	18
211	32428	32449	32469	32490	32510	32531	32552	32572	32593	32613	9	21	20
212 213	32634 32838	32654 32858	$\frac{32675}{32879}$	$\frac{32695}{32899}$	$\frac{32715}{32919}$	32736	32756	32777	32797	32818		21	20
213	32838	33062	33082	32899	33122	32940 33143	32960 33163	32980 33183	33001 33203	33021 33224	1	2	2
215	33244	33264	33284	33304	33325	33345	33365	33385	33405	33425	3	6	6
216	33445	33465	33486	33506	33526	33546	33566	33586	33606	33626	4	8	8
217	33646	33666	33686	33706	33726	33746	33766	33786	33806	33826	5	11	10
218.	33846	33866	33885	33905	33925	33945	33965	33985	34005	34025	6	13	12
219	34044	34064	34084	34104	34124	34143	34163	34183	34203	34223	7	15	14
210										,			10
No.	0	1	2	3	4	5	6	7	8	9	8	17 19	16 18

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2. 000	

TABLE 42.

No.	22002800).							I	og. 34242-	447	16.
No.	0	1	2	3	4	5	6	7	. 8	9		
220	34242	34262	34282	34301	34321	34341	34361	34380	34400	34420		
221	34439	34459	34479	34498	34518	34537	34557	34577	34596	34616		20
2 22	34635	34655	34674	34694	34713	34733	34753	34772	34792	34811	1	2
223	34830	34850	34869	34889	34908	34928	34947	34967	34986	35005	2	4
224	35025	35044	35064	35083	35102	35122	35141	35160	35180	35199	3	6
225	35218	35238	35257	35276	35295	35315	35334	35353	35372	35392	4 5	8 10
226	35411	35430	35449	35468	35488	35507	35526	35545	35564	35583	6	12
227	35603 35793	$35622 \\ 35813$	$35641 \\ 35832$	$35660 \\ 35851$	35679 35870	$35698 \\ 35889$	35717 35908	35736 35927	35755 35946	35774 35965	6 7	14
$\frac{228}{229}$	35984	36003	$\frac{36021}{36021}$	36040	36059	36078	36097	36116	36135	36154	8	16
230	36173	36192	36211	$\frac{36229}{}$	36248	$\frac{36267}{36267}$	36286	36305	36324	36342	9	18
231	36361	36380	36399	36418	36436	36455	36474	36493	36511	36530		19
232	36549	36568	36586	36605	36624	36642	36661	36680	36698	36717		-2
233	36736	36754	36773	36791	36810	36829	36847	36866	36884	36903	1. 2	4
234	36922	36940	36959	36977	36996	37014	37033	37051	37070	37088	3	6
235	37107	37125	37144	37162	37181	37199	37218	37236	37254	37273	4	8
236	37291	37310	37328	37346	37365	37383	37401	37420	37438	37457	$\hat{5}$	10
237	37475	37493	37511	37530	37548	37566	37585	37603	37621	37639	6	11
238	37658	37676	37694	37712	37731	37749	37767	37785	37803	37822	7	13
239	37840	37858	37876	37894	37912	37931	37949	37967	37985	38003	8	15
240	38021	38039	38057	38075	38093	38112	38130	38148	38166	38184	9	17
241	38202	38220	38238	38256	38274	38292	38310	38328	38346	38364		18
242	38382	38399	38417	38435	38453	38471	38489	38507	38525	38543	1	$-\frac{1}{2}$
243	38561	38578	38596	38614	38632	38650	38668	38686	38703	38721		4
244	38739	38757	38775	38792	38810	38828	38846	38863	38881	38899	2 3 4	5
245	38917	38934	38952	38970	38987	39005	39023	39041	39058	39076	4	7
$\begin{array}{c} 246 \\ 247 \end{array}$	$39094 \\ 39270$	$\frac{39111}{39287}$	39129 39305	$\frac{39146}{39322}$	39164 39340	39182	39199	39217	39235	39252	5	9
248	39445	39463	39480	39498	39515	39358 39533	39375 39550	39393 39568	39410 39585	39428	6	11
249	39620	39637	39655	39672	39690	39707	39724	39742	39759	39602 39777	7	13
$\frac{210}{250}$	39794	39811	39829	$\frac{39846}{}$	39863	39881	39898	39915	39933	39950	8	14
251	39967	39985	40002	40019	40037	40054	40071	40088	40106	40123	9	16
252	40140	40157	40175	40192	40209	40226	40243	40261	40278	40295		17
253	40312	40329	40346	40364	40381	40398	40415	40432	40449	40466	1	2
254	40483	40500	40518	40535	40552	40569	40586	40603	40620	40637	2 3	3
255	40654	40671	40688	40705	40722	40739	40756	40773	40790	40807	3	5
256	40824	40841	40858	40875	40892	40909	40926	40943	40960	40976	4	7
257	40993	41010	41027	41044	41061	41078	41095	41111,	41128	41145	5 6	9
258	41162	41179	41196	41212	41229	41246	41263	41280	41296	41313	6	10
259	41330	41347	41363	41380	41397	41414	41430	41447	41464	41481	7 8	12 14
260	41497	41514	41531	41547	41564	41581	41597	41614	41631	41647	9	15
261	41664	41681	41697	41714	41731	41747	41764	41780	41797	41814		-
262	41830	41847	41863	41880	41896	41913	41929	41946	41963	41979		16
263 264	41996 42160	$\frac{42012}{42177}$	$\frac{42029}{42193}$	42045 42210	$42062 \\ 42226$	42078	42095	42111	42127	42144	1	2
						42243	42259	42275	42292	42308	$\frac{2}{3}$	3
$\frac{265}{266}$	42325 42488	42341 42504	$\frac{42357}{42521}$	42374	42390	42406	42423	42439	42455	42472	3	5
267	42488	$\frac{42504}{42667}$	$\frac{42521}{42684}$	$\frac{42537}{42700}$	$42553 \\ 42716$	$42570 \\ 42732$	42586 42749	42602 42765	42619 42781	42635 42797	4 5	8
268	42813	42830	42846	42862	42878	42732	42749	42705	42781	42797	5 6	10
269	42975	42991	43008	43024	43040	43056	43072	43088	43104	43120	7	11
270	43136	43152	43169	43185	43201	43217	43233	43249	43265	43281	8	13
271	43297	43313	43329	43345	43361	43377	43393	43409	43425	43441	9	14
272	43457	43473	43489	43505	43521	43537	43553	43569	43584	43600		1
273	43616	43632	43648	43664	43680	43696	43712	43727	43743	43759	1	2
274	43775	43791	43807	43823	43838	43854	43870	43886	43902	43917	2	, 3
275	43933	43949	43965	43981	43996	44012	44028	44044	44059	44075	3	, 3
276	44091	44107	44122	44138	44154	44170	44185	44201	44217	44232	4	6
277	44248	44264	44279	44295	44311	44326	44342	44358	44373	44389	5	8
278	44404	44420	44436	44451	44467	44483	44498	44514	44529	44545	6	9
279	44560	44576	44592	44607	44623	44638	44654	44669	44685	44700	7	11
NT -											8 9	12 14
No.	0	1	2	3	4	5	6	7	8	9	9	14

TABLE 42.

No.	2800340	0.							I.	og. 44716–	531	148.
No.	0	1	2	3	4	5	66	7	8	9		
280	44716	44731	44747	44762	44778	44793	44809	44824	44840	44855		16
281	44871	44886	$44902 \\ 45056$	$\frac{44917}{45071}$	$\frac{44932}{45086}$	$\frac{44948}{45102}$	$\frac{44963}{45117}$	$44979 \\ 45133$	44994 45148	$45010 \\ 45163$	1	2
282 283	$45025 \\ 45179$	45040 45194	45209	$45071 \\ 45225$	45240	$45102 \\ 45255$	$45117 \\ 45271$	45286	45301	45317	$\frac{2}{3}$	3 5
284	45332	45347	45362	45378	45393	45408	45423	45439	45454	45469		5 6
285	45484	45500	45515	45530	45545	45561	45576	45591	45606	45621	4 5	8
286	45637	45652	45667	$45682 \\ 45834$	$45697 \\ 45849$	45712	$45728 \\ 45879$	45743 45894	45758 45909	45773 45924	6	10
287 288	45788 45939	$45803 \\ 45954$	$45818 \\ 45969$	45984	46000	$\frac{45864}{46015}$	46030	46045	46060	46075	7	11
289	46090	46105	46120	46135	46150	46165	46180	46195	46210	46225	8	13 14
290	46240	46255	46270	46285	46300	46315	46330	46345	46359	46374		
291 292	$46389 \\ 46538$	$\frac{46404}{46553}$	$\frac{46419}{46568}$	$\frac{46434}{46583}$	$\frac{46449}{46598}$	$\frac{46464}{46613}$	$\frac{46479}{46627}$	$46494 \\ 46642$	$46509 \\ 46657$	$\begin{vmatrix} 46523 \\ 46672 \end{vmatrix}$		
293	46687	46702	46716	46731	46746	46761	46776	46790	46805	46820		15
294	46835	46850	46864	46879	46894	46909	46923	46938	46953	46967	1	9
295	46982	46997	47012	47026	47041	47056	47070	47085	47100	47114	2	2 3 5
296 297	$47129 \\ 47276$	$47144 \\ 47290$	$47159 \\ 47305$	47173 47319	$47188 \\ 47334$	$47202 \\ 47349$	$47217 \\ 47363$	$47232 \\ 47378$	$47246 \\ 47392$	47261 47407	$\frac{2}{3}$	
298	47422	47436	47451	47465	47480	47494	47509	47524	47538	47553	4	6
299	47567	47582	47596	47611	47625	47640	47654	47669	47683	47698	5 6	8 9
300	47712	47727	47741	47756	47770	47784	47799	47813	47828	47842	7	11
301	47857	47871	47885	47900	47914	47929	47943	47958	47972	47986	8	12
302 303	48001 48144	48015 48159	$\frac{48029}{48173}$	48044 48187	$48058 \\ 48202$	$48073 \\ 48216$	$48087 \\ 48230$	48101 48244	48116 48259	48130 48273	9	14
304	48287	48302	48316	48330	48344	48359	48373	48387	48401	48416		1
305	48430	48444	48458	48473	48487	48501	48515	48530	48544	48558		14
306	48572	48586	48601	48615	48629	48643	48657	48671	48686	48700		
307	48714	48728	48742	48756	48770	48785	48799	48813 48954	48827	48841	1	1
308 309	$\frac{48855}{48996}$	48869 49010	48883 49024	48897 49038	$48911 \\ 49052$	$48926 \\ 49066$	48940 49080	49094	48968 49108	48982 49122	$\frac{2}{3}$	3
310	49136	49150	49164	49178	49192	49206	49220	49234	49248	49262	4	6
311	49276	49290	49304	49318	49332	49346	49360	49374	49388	49402	$\hat{5}$	7
312	49415	49429	49443	49457	49471	49485	49499	49513	49527	49541	6	8
313 314	49554 49693	49568 49707	$49582 \\ 49721$	$49596 \\ 49734$	$\frac{49610}{49748}$	49624 49762	49638 49776	49651 49790	49665 49803	49679 49817	7 8	10 11
315	49831	49845	49859	49872	49886	49900	49914	49927	49941	49955	9	13
316	49969	49982	49996	50010	50024	50037	50051	50065	50079	50092		
317	50106	50120	50133	50147	50161	50174	50188	50202	50215	50229		1 10
318 319	50243 50379	50256 50393	50270 50406	$50284 \\ 50420$	50297 50433	50311 50447	50325 50461	50338 50474	50352 50488	50365 50501		13
320	50515	50529	50542	50556	50569	50583	50596	50610	50623	50637	1	1
321	50651	50664	50678	50691	50705	50718	50732	50745	50759	50772	2	3
322	50786	50799	50813	50826	50840	50853	50866	50880	50893	50907	3	4
$\frac{323}{324}$	50920 51055	$50934 \\ 51068$	$50947 \\ 51081$	50961 51095	50974 51108	50987 51121	$51001 \\ 51135$	51014 51148	$51028 \\ 51162$	51041 51175	5	4 5 7.
325	51188	51202	51215	$\frac{51033}{51228}$	51242	$\frac{51121}{51255}$	51268	51282	51295	51308	6	8
326	51322	51335	51348	51362	51375	51388	51402	51415	51428	51441	7	9 -
327	51455	51468	51481	51495	51508	51521	51534	51548	51561	51574	8	10 ·
$\frac{328}{329}$	51587 51720	51601 51733	51614 51746	51627 51759	$51640 \\ 51772$	$51654 \\ 51786$	$51667 \\ 51799$	51680 51812	51693 51825	51706 51838	9	12
$\frac{329}{330}$	51851	51865	51878	51891	$\frac{51772}{51904}$	$\frac{51780}{51917}$	51799	$\frac{51812}{51943}$	$\frac{51825}{51957}$	$\frac{51838}{51970}$		
331	51983	51996	52009	52022	52035	52048	52061	52075	52088	52101		12
332	52114	52127	52140	52153	52166	52179	52192	52205	52218	52231		
333	52244 52275	52257	52270	52284	52297	52310	52323	52336	52349	52362	$\frac{1}{2}$	$\frac{1}{2}$
334	$\frac{52375}{52504}$	$\frac{52388}{52517}$	$\frac{52401}{52530}$	$\frac{52414}{52543}$	$\frac{52427}{52556}$	$\frac{52440}{52569}$	$\frac{52453}{52582}$	$\frac{52466}{52595}$	$\frac{52479}{52608}$	$\frac{52492}{52621}$	3	4
336	52634	52647	52660	52673	52686	52699	52582 52711	52724	52737	52750	4	5
337	52763	52776	52789	52802	52815	52827	52840	52853	52866	52879	5	6
338	52892	52905	52917	52930	52943	52956	52969	52982	52994	53007	6	8
339	53020	53033	53046	53058	53071	53084	53097	53110	53122	53135	8	10
No.	0	1	2	3	4	5	6	7	8	9	9	11

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TABLE 42.

Logarithms of Numbers.

No.	3400400	0.							I	og. 53148-	602	206.
No.	0	1	2	3	4	5	6	7	8	9		
340	53148	53161	53173	53186	53199	53212	53224	53237	53250	53263		13
341	53275	53288	53301	53314	53326	53339	53352	53364	53377	53390	1	1
342	53403	53415	53428 53555	53441 53567	53453 53580	53466	53479 53605	53491 53618	53504	53517	2	3
343 344	$53529 \\ 53656$	$53542 \\ 53668$	53681	53694	53706	53593 53719	53732	53744	53631 53757	53643 53769	3	4
345	53782	53794	53807	$\frac{-53820}{53820}$	53832	53845	53857	53870	53882	53895	4	5
346	53908	53920	53933	53945	53958	53970	53983	53995	54008	54020	5	7
347	54033	54045	54058	54070	54083	54095	54108	54120	54133	54145	6	8
348	54158	54170	54183	54195	54208	54220	54233	54245	54258	54270	7	9
349	54283	54295	54307	54320	54332	54345	54357	54370	54382	54394	8	10
350	54407	54419	54432	54444	54456	54469	54481	54494	54506	54518	J	12
351	54531	54543	54555	54568	54580	54593	54605	54617	54630	54642		
352	54654	54667	54679	54691	54704	54716	54728	54741	54753	54765		
353	54777	54790	54802 54925	$54814 \\ 54937$	54827 54949	$54839 \\ 54962$	54851 54974	54864	54876	54888		
354	54900	54913	55047	$\frac{54937}{55060}$	55072		55096	$\frac{54980}{55108}$	54998	55011		
355 356	55023 55145	$55035 \\ 55157$	55169	55182	55194	$55084 \\ 55206$	55218	55230	$55121 \\ 55242$	55133 55255		1 -0
357	55267	55279	55291	55303	55315	55328	55340	55352	55364	55376		12
358	55388	55400	55413	55425	55437	55449	55461	55473	55485	55497	7	7
359	55509	55522	55534	55546	55558	55570	55582	55594	55606	55618	1 2	1 2
360	55630	55642	55654	55666	55678	55691	55703	55715	55727	55739	$\frac{2}{3}$	4
361	55751	55763	55775	55787	55799	55811	55823	55835	55847	55859	4	5
362	55871	55883	55895	55907	55919	55931	55943	55955	55967	55979	5	5
363	55991	56003	56015	56027	56038	56050	56062	56074	56086	56098	6	7
364	56110	56122	56134	56146	56158	56170	56182	56194	56205	56217	7	8
365	56229	56241	56253	56265	56277	56289	56301	56312	56324	56336	8	10
366	56348	56360	56372	56384	56396	56407	56419	56431	56443	56455	9	11
$\frac{367}{368}$	56467 56585	$56478 \\ 56597$	56490 56608	56502 56620	56514 56632	$56526 \\ 56644$	56538 56656	56549 56667	$56561 \\ 56679$	56573 56691		·
369	56703	56714	56726	56738	56750	56761	56773	56785	56797	56808		
370	56820	56832	56844	56855	56867	56879	56891	56902	56914	56926		
371	56937	56949	56961	56972	56984	56996	57008	57019	57031	57043		
372	57054	57066	57078	57089	57101	57113	57124	57136	57148	57159		
373	57171	57183	57194	57206	57217	57229	57241	57252	57264	57276		11
374	57287	57299	57310	57322	57334	57345	57357	57368	57380	57392		
375	57403	57415	57426	57438	57449	57461	57473	57484	57496	57507	1	1
376	57519	57530	57542	57553	57565	57576	57588	57600	57611	57623	$\frac{2}{3}$	3
377 378	57634	57646	57657	57669	57680	57692	57703	57715	57726	57738	4	4
379	57749 57864	57761 57875	57772 57887	57784 57898	57795 57910	$57807 \\ 57921$	57818 57933	57830 57944	57841 57955	57852 57967	$\hat{5}$	6
380	57978	57990	58001	58013	58024	58035	58047	58058	58070	58081	6	7
381	58092	58104	58115	58127	58138	58149	58161	58172	58184	58195	7	8
382	58206	58218	58229	58240	58252	58263	58274	58286	58297	58309	8	9
383	58320	58331	58343	58354	58365	58377	58388	58399	58410	58422	9	10
384	58433	58444	58456	58467	58478	58490	58501	58512	58524	58535		
385	58546	58557	58569	58580	58591	58602	58614	58625	58636	58647		
386	58659	58670	58681	58692	58704	58715	58726	58737	58749	58760		
387	58771	58782	58794	58805	58816	58827	58838	58850	58861	58872		
$\frac{388}{389}$	58883 58995	58894 59006	58906 59017	58917 59028	58928	58939	58950	58961	58973 59084	58984 59095		
390	59106				59040	59051	59062	59073				10
391	59218	59118 59229	59129 59240	59140 59251	59151 59262	$59162 \\ 59273$	59173 59284	59184 59295	59195 59306	$59207 \\ 59318$	1	,
392	59329	59340	59351	59362	59373	59384	59395	59406	59417	59428	1	$\frac{1}{2}$
393	59439	59450	59461	59472	59483	59494	59506	59517	59528	59539	$\frac{2}{3}$	3
394	59550	59561	59572	59583	59594	59605	59616	59627	59638	59649	4	4
395	59660	59671	59682	59693	59704	59715	59726	59737	59748	59759	5	5
396	59770	59780	59791	59802	59813	59824	59835	59846	59857	59868	6	6
397	59879	59890	59901	59912	59923	59934	59945	59956	59966	59977	7	7
398	59988	59999	60010	60021	60032	60043	60054	60065	60076	60086	8	8
399	60097	60108	60119	60130	60141	60152	60163	60173	60184	60195	9	9
No.	0	1	2	3	4	5	6	7	8	9		
		-	-	•	•	•			9			

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TABLE 42.

No.	0 1											
	0	1	2	3	4	5	6	7	8	9		
400	60206	60217	60228	60239	60249	60260	60271	60282	60293	60304		11
401	60314	60325	60336	60347	60358	60369	60379	60390	60401	60412	1	1
	60423	60433	60444	$60455 \\ 60563$	$60466 \\ 60574$	60477 / 60584	60487 60595	60498 60606	$60509 \\ 60617$	$60520 \\ 60627$	$\hat{2}$	$\frac{1}{2}$
403 404	60531 60638	60541 60649	60552 60660	60670	60681	60692	60703	60713	60724	60735	3	3
405	60746	60756	60767	60778	60788	60799	60810	60821	60831	60842	4	4
406	60853	60863	60874	60885	60895	60906	60917	60927	60938	60949	5 6	6
407	60959	60970	60981	60991	61002	61013	61023	61034	61045	61055	7	8
408	61066	$61077 \\ 61183$	$61087 \\ 61194$	$61098 \\ 61204$	$61109 \\ 61215$	$61119 \\ 61225$	$61130 \\ 61236$	$61140 \\ 61247$	$61151 \\ 61257$	61162 61268	8	9
$\frac{409}{410}$	$\frac{61172}{61278}$	61289	61300	61310	61321	61331	61342	61352	61363	61374	9	10
411	61384	61395	61405	61416	61426	61437	61448	61458	61469	61479		
412	61490	61500	61511	61521	61532	61542	61553	61563	61574	61584		
413	61595	61606	61616	61627	61637	61648	61658	61669	61679	61690		
414	61700	61711	61721	$\frac{61731}{61836}$	$\frac{61742}{61847}$	$\frac{61752}{61857}$	$\frac{61763}{61868}$	$\frac{61773}{61878}$	$\frac{61784}{61888}$	$\frac{61794}{61899}$		
415 416	61805 61909	61815 61920	61826 61930	61941	61951	61962	61972	61982	61993	62003		
417	62014	62024	62034	62045	62055	62066	62076	62086	62097	62107		
418	62118	62128	62138	62149	62159	62170	62180	62190	62201	62211		
419	62221	62232	62242	62252	62263	62273	62284	62294	62304	62315		
420	62325	62335	62346 62449	$62356 \\ 62459$	62366 62469	$62377 \\ 62480$	62387 62490	62397 62500	62408 62511	62418 62521		
421 422	$62428 \\ 62531$	$62439 \\ 62542$	62552	62562	62572	62583	62593	62603	62613	62624		
423	62634	62644	62655	62665	62675	62685	62696	62706	62716	62726	-	
424	62737	62747	62757	62767	62778	62788	62798	62808	62818	62829		10
425	62839	62849	62859	62870	62880	62890	62900	62910	62921	62931		
426	62941	62951	62961	$62972 \\ 63073$	62982 63083	$62992 \\ 63094$	63002	63012 63114	$63022 \\ 63124$	63033 63134	1	1
427 428	63043 63144	$63053 \\ 63155$	63063 63165	63175	63185	63195	$63104 \\ 63205$	63215	63225	63236	2	2 3
429	63246	63256	63266	63276	63286	63296	63306	63317	63327	63337	3 4	4
430	63347	63357	63367	63377	63387	63397	63407	63417	63428	63438	5	5
431	63448	63458	63468	63478	63488	63498	63508	63518	63528	63538	6	6
432	63548	63558	63568 63669	63579 63679	63589 63689	63599 63699	63609 63709	63619 63719	63629 63729	63639 63739	7	7
433 434	63649 63749	63659 63759	63769	63779	63789	63799	63809	63819	63829	63839	8	8 9
435	63849	63859	63869	63879	63889	63899	63909	63919	63929	63939	3	
436	63949	63959	63969	63979	63988	63998	64008	64018	64028	64038		
437	64048	64058	64068	64078	64088	64098	64108	64118	64128	64137		
438 439	64147 64246	64157 64256	64167 64266	$64177 \\ 64276$	64187 64286	$64197 \\ 64296$	64207 64306	64217 64316	64227 64326	64237 64335		
440	64345	64355	64365	64375	64385	64395	64404	64414	64424	64434		
441	64444	64454	64464	64473	64483	64493	64503	64513	64523	64532		
442	64542	64552	64562	64572	64582	64591	64601	64611	64621	64631		
443	64640	64650	64660 64758	64670 64768	64680 64777	64689 64787	64699 64797	64709 64807	64719 64816	64729 64826		
444	64738	64748 64846	64856	64865	64875	64885	64895	64904	64914	64924		
446	64933	64943	64953	64963	64972	64982	64992	65002	65011	65021		
447	65031	65040	65050	65060	65070	65079	65089	65099	65108	65118		
448	65128	65137	65147	65157	65167	65176	65186	65196	65205	65215		
449	65225	65234	65244	65254	65263	65273	65283	65292	65302	65312		9
450 451	65321 65418	65331 65427	65341 65437	65350 65447	65360 65456	65369 65466	65379 65475	65389 65485	65398 65495	65408 65504	1	1
452	65514	65523	65533	65543	65552	65562	65571	65581	65591	65600	2	2
453	65610	65619	65629	65639	65648	65658	65667	65677	65686	65696	3	3
454	65706	65715	65725	65734	65744	65753	65763	65772	65782	65792	4	4
455	65801	65811	65820	65830	65839	65849	65858	65868	65877 65973	$65887 \\ 65982$	5 6	5 5
456 457	65896 65992	65906 66001	65916 66011	$65925 \\ 66020$	65935 66030	65944	65954 66049	65963 66058	66068	66077	7	6
458	66087	66096	66106	66115	66124	66134	66143	66153	66162	66172	8	7
459	66181	66191	66200	66210	66219	66229	66238	66247	66257	66266	9	8
No.	0	1	2	3	4	5	6	7	8	9		
No.	·	1	-	3	*	9		•	0	,		

TABLE 42.

No.	4600520	ю.							I	og. 66276-	—-716	300.
No.	0	1	2	3	4	5	6	7	8	9		
460	66276	66285	66295	66304	66314	66323	66332	66342	66351	66361		10
461	66370	66380	66389	66398	66408	66417	66427	66436	66445	66455		
462	66464	66474	66483	66492	66502	66511	66521	66530	66539	66549	1	1
463	66558	66567	66577	66586	66596	66605	66614	66624	66633	66642	2	3
464	66652	66661	66671	66680	66689	66699	66708	66717	66727	66736	3	3
465	66745	66755	66764	66773	66783	66792	66801	66811	66820	66829	4	4
466	66839	66848	66857	66867	66876	66885	66894	66904	66913	66922	5	5
467	66932	66941	66950	66960	66969	66978	66987	66997	67006	67015	6	6
468	67025	67034	67043	67052	67062	67071	67080	67089	67099	67108	7	7
469	67117	67127	67136	67145	67154	67164	67173	67182	67191	67201	8	8
470	67210	67219	67228	67237	67247	67256	67265	67274	67284	67293	9	9
471	67302	67311	67321	67330	67339	67348	67357	67367	67376	67385	├	-
472	67394	67403	67413	67422	67431	67440	67449	67459	67468	67477	1	
473	67486	67495	67504	67514	67523	67532	67541	67550	67560	67569	1	
474	67578	67587	67596	67605	67614	67624	67633	67642	67651	67660	1	
475	67669	67679	67688	67697	67706	67715	67724	67733	67742	67752		
	67761	67770	67779	67788	67797	67806	67815	67825	67834	67843	l	
476 477	67852	67861	67870	67879	67888	67897	67906	67916	67925	67934		
411		67952	67961	67970	67979	67988	67997	68006	68015			
478	67943	68043	68052	68061	68070	68079	68088	68097	68106	68024	1	
479	68034						68178					
480	68124	68133	68142	68151	68160	68169		68187	68196	68205	1	
481	68215	68224	68233	68242	68251 68341	68260	68269	68278	68287	68296		
482	68305	68314	68323	68332	68431	68350	68359	68368	68377	68386	1	
483	68395	68404	68413	$68422 \\ 68511$	68520	$68440 \\ 68529$	68449 68538	68458 68547	68467	68476	_	
484	68485	68494	68502						68556	68565		9
485	68574	68583	68592	68601	68610	68619	68628	68637	68646	68655		
486	68664	68673	68681	68690	68699	68708	68717	68726	68735	68744	1	1
487	68753	68762	68771 68860	68780	68789	68797	68806	68815	68824	68833	2	$\frac{1}{2}$
488	68842	68851		68869	68878 68966	68886	68895	68904	68913	68922	3	3
489	68931	68940	68949	68958		68975	68984	68993	69002	69011	4	4 5 5
490	69020	69028	69037	69046	69055	69064	69073	69082	69090	69099	5	5
491	69108	69117	69126	69135	69144	69152	69161	69170 69258	69179	69188	6	
492	69197	69205	69214	69223	69232	69241	69249	09208	69267	69276	7	6
493	69285	69294	69302	69311	69320	69329	69338	69346	69355	69364	8	7
494	69373	69381	69390	69399	69408	69417	69425	69434	69443	69452	. 9	8
495	69461	69469	69478	69487	69496	69504	69513	69522	69531	69539		
496	69548	69557	69566	69574	69583	69592	69601	69609	69618	69627		
497	69636	69644	69653	69662	69671	69679	69688	69697	69705	69714		
498	69723	69732	69740	69749	69758	69767	69775	69784	69793	69801		
_499	69810	69819	69827	69836	69845	69854	69862	69871	69880	69888		
500	69897	69906	69914	69923	69932	69940	69949	69958	69966	69975		
501	69984	69992	70001	70010	70018	70027	70036	70044	70053	70062		
502	70070	70079	70088	70096	70105	70114	70122	70131	70140	70148		
503	70157	70165	70174	70183	70191	70200	70209	70217	70226	70234		
504	70243	70252	70260	70269	70278	70286	70295	70303	70312	70321		,
505	70329	70338	70346	70355	70364	70372	70381	70389	70398	70406		
506	70415	70424	70432	70441	70449	70458	70467	70475	70484	70492		
507	70501	70509	70518	70526	70535	70544	70552	70561	70569	70578		
508	70586	70595	70603	70612	70621	70629	70638	70646	70655	70663		
509	70672	70680	70689	70697	70706	70714	70723	70731	70740	70749		8
510	70757	70766	70774	70783	70791	70800	70808	70817	70825	70834		
511	70842	70851	70859	70868	70876	70885	70893	70902	70910	70919	`1	1
512	70927	70935	70944	70952	70961	70969	70978	70986	70995	71003	2	2
513	71012	71020	71029	71037	71046	71054	71063	71071	71079	71088	3	2
514	71096	71105	71113	-71122	71130	71139	71147	71155	71164	71172	4	3
515	71181	71189	71198	71206	71214	71223	71231	71240	71248	71257	5	4
516	71265	71273	71282	71290	71299	71307	71315	71324	71332	71341	6	5
517	71349	71357	71366	71374	71383	71391	71399	71408	71416	71425	7	-6
518	71433	71441	71450	71458	71466	71475	71483	71492	71500	71508	8	6
519	71517	71525	71533	71542	71550	71559	71567	71575	71584	71592	9	7
No.	0	1	2	3	4	5	6	7	8	9		

TABLE 42.

No.	. 5200——58	00.							Lo	og. 71600—	—763 4	3.
No.	0	1	2	3	4	. 5	6 .	7	8	9		
520	71600	71609	71617	71625	71634	71642	71650	71659	71667	71675		9
521	71684	71692	71700	71709	71717	71725	71734,	71742	71750	71759	1	1
522	71767.	71775	71784	71792	71800	71809	71817	71825	71834	71842	$\frac{1}{2}$	$\frac{1}{2}$
523	71850	71858	71867	71875	71883 71966	71892 71975	71900 71983	71908 71991	$71917 \\ 71999$	71925 72008	3	3
524	$\frac{71933}{72016}$	71941	$\frac{71950}{72032}$	$\frac{71958}{72041}$	72049	$\frac{71973}{72057}$	72066	$\frac{71991}{72074}$	$\frac{71999}{72082}$	72090	4	3 4
525 526	72016	$72024 \\ 72107$	72032	72123	72132	72140	72148	72156	72165	72173	5	5
527	72181	72189	72198	72206	72214	72222	72230	72239	72247	72255	6	5 6
528	72263	72272	$72198 \\ 72280$	$72\overline{206} $ $72\overline{288}$	72296	72304	72313	72321	72329	72337	. 7	7
529	72346	72354	72362	72370	72378	72387	72395	72403	72411	72419	8	8
530	72428	72436	72444	72452	72460	72469	72477	72485	72493	72501	"	
531	72509	72518	72526	72534	72542	72550	72558	72567	72575	72583		
532	72591	72599	72607	$72616 \\ 72697$	$72624 \\ 72705$	$72632 \\ 72713$	$72640 \\ 72722$	72648 72730	$72656 \\ 72738$	$72665 \\ 72746$		
533 534	$72673 \\ 72754$	$72681 \\ 72762$	$72689 \\ 72770$	72779	72787	72795	72803	72811	72819	72827	ı	
535	72835	72843	$\frac{72770}{72852}$	72860	72868	$\frac{72736}{72876}$	72884	72892	72900	72908		
536	72916	72925	72933	72941	72949	72957	72965	72973	72981	72989	i	
537	72997	73006	73014	73022	73030	73038	73046	73054	73062	73070	l	
538	73078	73086	73094	73102	73111	73119	73127	73135	73143	73151		
539	73159	73167	73175	73183	73191	73199	73207	73215	73223	73231		
540	73239	73247	73255	73263	73272	73280	73288	73296	73304	73312		
541	73320	73328	73336	73344	73352	73360	73368	73376	73384	73392		
542 543	73400 73480	73408 73488	73416 73496	73424 73504	$73432 \\ 73512$	$73440 \\ 73520$	$73448 \\ 73528$	73456 73536	73464 73544	$73472 \\ 73552$		
544	73560	73568	73576	73584	73512	73600	73608	73616	73624	73632	_	
545	73640	73648	73656	73664	73672	73679	73687	73695	73703	73711		8
546	73719	73727	73735	73743	73751	73759	73767	73775	73783	73791	4	1
547	73799	73807	73815	73823	73830	73838	73846	73854	73862	73870	$\frac{1}{2}$	$\frac{1}{2}$
548	73878	73886	73894	73902	73910	73918	73926	73933	73941	73949	3	2
549	73957	73965	73973	73981	73989	73997	74005	74013	74020	74028	4	$\frac{1}{2}$
550	74036	74044	74052	74060	74068	74076	74084	74092	74099	74107	5	4
$551 \\ 552$	74115	$74123 \\ 74202$	$74131 \\ 74210$	$74139 \\ 74218$	$74147 \\ 74225$	74155 74233	$74162 \\ 74241$	$74170 \\ 74249$	$74178 \\ 74257$	74186 74265	6	5
553	$74194 \ 74273$	74280	74210	74296	74304	74312	74320	74327	74335	74343	8	6
554	74351	74359	74367	74374	74382	74390	74398	74406	74414	74421	9	7
555	74429	74437	74445	74453	74461	74468	74476	74484	74492	74500	ľ	•
556	74507	74515	74523	74531	74539	74547	74554	74562	74570	74578		1
557	74586	74593	74601	74609	74617	74624	74632	74640	74648	74656		
558	74663	74671	74679	74687	74695	74702	74710	74718	74726	74733		
559	74741	74749	74757	74764	74772	74780	74788	74796	74803	74811		
560 561	$74819 \\ 74896$	74827 74904	$74834 \\ 74912$	$74842 \\ 74920$	$74850 \\ 74927$	74858 74935	$74865 \\ 74943$	74873 74950	$74881 \\ 74958$	74889 74966		
$\begin{array}{c} 561 \\ 562 \end{array}$	74974	74904	74912	74920	75005	75012	75020	75028	75035	75043		
563	75051	75059	75066	75074	75082	75089	75097	75105	75113	75120		
_564	75128	75136	75143	75151	75159	75166	75174	75182	75189	75197		
565	75205	75213	75220	75228	75236	75243	75251	75259	75266	75274		
566	75282	75289	75297	75305	75312	75320	75328	75335	75343	75351		
567	75358	75366	75374	75381	75389	75397	75404	75412	75420	75427		
568 569	75435 75511	75442 75519	75450 75526	$75458 \\ 75534$	$75465 \\ 75542$	75473 75549	$75481 \\ 75557$	75488 75565	$75496 \\ 75572$	75504 75580		
570	75587	75595	75603	75610	75618	$\frac{75626}{75626}$	75633	$\frac{75641}{75641}$	75648	$\frac{75656}{75656}$		7
571	75664	75671	75679	75686	75694	75702	75709	75717	75724	75732	1	1
572	75740	75747	75755	75762	75770	75778	75785	75793	75800	75808	2	1
573	75815	75823	75831	75838	75846	75853	75861	75868	75876	75884	3	2
574	75891	75899	75906	75914	75921.	75929	75937	75944	75952	75959	4	3
575	.75967	75974	75982	75989	75997	76005	76012	76020	76027	76035	5	4
576	76042	76050	76057	76065	76072	76080	76087	76095	76103	76110	6	4
577 578	76118 76193	$76125 \\ 76200$	76133 76208	$76140 \\ 76215$	$76148 \\ 76223$	$76155 \\ 76230$	76163	76170 76245	76178 76253	76185 76260	8	5 6
579	76268	76275	76283	76213	76298	. 76305	$76238 \\ 76313$	76320	76328	76335	9	6
	. 0200			.0200	. 0200	. 10000	10010			10000		,
No.	0	1	2	3	4	5	6	7	8	9		

TABLE 42.

No. O	No.	58006400).							L	og. 76343-	806	318.
September Sept	No.	0	1	2	3	4	5	6	7	8	9		
582 76492 76500 76507 76515 76522 76530 76514 76520 76569 1 1 7658 76567 76514 76649 76640 76612 76601 76612 76606 76669 76668 76669 76701 76708 3 2 2 558 76716 76723 76738 76769 76708 76780 76783 76690 76690 76690 76680 76690 76680 76680 76680 76680 76680 76681 76680 76690 76690 76690 76690 76690 76690 76690 76690 776900 77690 77700 77707			76350	76358	76365	76373		76388	76395	76403			8
584 7667 76671 76687 76680 76680 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76680 76680 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76681 76680 76680 76680 76680 76680 76680 76680 76680 76681 76680 76	581		76425	76433	76440	76448		76462		76477		1	1
584 76641 76849 76656 76878 76878 76878 76878 76787 76886 76808 76700 76708 6757 7685 4 585 76700 76707 76806 76884 76871 76807 76808 76819 76807 76804 76817 76807 76808 76803 76804 76817 76808 76803 76804 76817 76808 76803 76804 76817 76808 76908 76906 76908 76906 76908 76908 76908 76908 76908 76908 76908 76908 76908 76907 77007 77004 7600 76908 77808 77808 77808 77808	582	76492	76574	76589	76580	76522	76604	76612		76696	76634	2	2
See			76649	76656	76664	76671				76701	76708	3	2
587 76864 76871 76876 76886 76890 76990 76992 76993 76993 76 8 8 589 76983 76960 77907 7707 77019 77019 77019 77010 77000 77200 77200 77200 77200 77200 77200 77200 77200 77200 77200 77200 77301 77440					76738					76775			3
587 76864 76871 76876 76886 76890 76990 76992 76993 76993 76 8 8 589 76983 76960 77907 7707 77019 77019 77019 77010 77000 77200 77200 77200 77200 77200 77200 77200 77200 77200 77200 77200 77301 77440	586	76790	76797	76805	76812	76819	76827	76834	76842	76849	76856		4
588 70035 70940 77034 77041 77084 70967 70967 77078 9 7 560 77085 77003 77100 77107 77115 77122 77129 77137 77174 77137 77144 77137 77127 77290 77210 77217 77203 77210 77217 77220 77210 77217 77220 77210 77217 77220 77210 77217 77220 77210 77217 77220 77210 77217 77220 77210 77217 77225 77390 77367 77367 77367 77367 77367 77371 77371 7732 7733 7731 7733 7731 7731 7732 7731 7732	587	76864	76871	76879	76886	76893	76901	76908	76916	76923	76930		6
590 77085 77090 77107 77115 77122 77129 77137 77144 77151 77180 77120 77217 77225 592 77232 77240 77247 77247 77264 77262 77260 77210 77217 77225 592 77305 77313 77320 77337 77347 77371 77364 77373 77347 77371 77347 77447 77415 77428 77357 77347 77447 77415 77428 77357 77347 77447 77488 77495 77500 77517 77587 77606 776747 77684 77637 77580 77580 77580 77580 77580 77580 77580 77580 77684 77764 77784 77784 77784 77784 77784 77784 77784 77784 77634 77644 77764 777637 77763 77784 77784 77784 77784 777844 77784 77784 77784 77	588	76938	76945	76953	76960		76975	76982	76989	76997	77004		6
591 77159 77166 77173 77181 77185 77202 77240 77267 77283 77291 77298 593 77305 77313 77320 77327 77385 77342 77349 77367 77364 77317 77386 77318 77390 77347 77386 77310 77408 77414 77481 77488 77490 77474 77441 77488 77490 77474 77410 77408 77417 77605 77500 77500 77500 77500 77500 77500 77500 77612 77619 77627 77634 77550 77580 77500 77607 77677 77677 77677 77677 77677 77677 77677 77677 77677 77677 77767 77767 77767 77767 77767 77767 77777 77760 77777 77777 77777 77777 77777 77777 77777 77777 777777 77777 77777 77777 77				77026	77034					77070			
598 77305 77318 77320 77321 77325 77340 77401 77408 77415 77494 77457 77480 77415 77495 77330 77377 77444 590 77452 77452 77539 77546 775754 77561 77561 77561 77561 77561 77561 77561 77561 77561 77567 77587 77583 77597 777676 77577 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77767 77760 77779 77787 77880 77890 77706 77779 77780 77780 77779 77787 77880 77880 77890 77706 77797 77780 77780 77780 77890 77800 77800 77800 77800 77800 77800 77800 77800 77800 77800 7800 7800 </td <td>590</td> <td>77085</td> <td>77093</td> <td>77100</td> <td>77107</td> <td></td> <td>77122</td> <td>77129</td> <td>77210</td> <td>77917</td> <td>77151</td> <td></td> <td>L</td>	590	77085	77093	77100	77107		77122	77129	77210	77917	77151		L
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599			77605	77612	77619	77627	77634		77648	77656	77663		
600 77815 77822 77830 77837 77844 77851 77866 77875 77962 77967 77967 77974 77981 77982 77931 77938 77945 77931 77938 77945 77931 77938 77967 77977 77974 77981 77988 77966 78003 78010 78017 78025 8037 78010 78117 78118 78182 78182 78140 78147 78154 78161 78168 78037 78204 78211 78219 78226 78231 78247 78254 78262 78269 78276 78833 78307 78319 78319 78328 78390 78397 78312 1 1 78607 78319 78333 78340 78417 78451 78412 78419 78426 78483 78490 78547 78553 78328 78390 78397 78547 78554 78547 78554 78547 78554 78633 78640		77670	77750	77685	77764	77779	77779	77786	77793	77801	77808		
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605 78176 78183 78190 78294 78241 78241 78242 78247 78254 78262 78262 78262 78262 78262 78262 78262 78262 78262 78262 78262 78262 78262 78263 78307 78307 78308 78308 78340 78347 78355 78362 78369 78376 78383 2 1 609 78462 78469 78476 78483 78490 78476 78483 78490 78574 78554 78561 78569 78512 78519 78526 4 3 611 78604 78611 78618 78667 78684 78661 78660 78576 78564 78661 78660 78576 78661 78661 78640 78641 78661 78661 78661 78661 78664 78675 78622 78889 78696 78774 78711 78711 78711 78711 78711 78711<		78032	78039	78046	78053	78061	78068	78075		78089	78097		
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608 78360 78369 78469 78469 78469 78460 78460 78460 78460 78547 78548 78490 78507 78507 78507 78507 78507 78509 78507 78500 78597 5 4 3 611 78604 78611 78618 78625 78633 78640 78647 78647 78668 6 4 78611 78668 78696 78704 78711 78718 78647 78647 78668 6 4 4 78611 78668 78666 6 4 4 78675 78682 78689 78696 78704 78711 78718 78789 78796 78803 78810 8 6 6 4 78611 78744 78711 78789 78796 78803 78810 8 6 6 4 78611 78928 78960 78897 78986 78893 78900 78937 78944 78951		78247	78254	78262	78269	78276	78283	78290	78297	78376	78312	1	
Solid T8533 T8540 T8547 T8554 T8556 T8561 T8569 T8576 T8567 T8583 T8590 T8597 T8597 T8597 T8583 T8604 T8611 T8618 T8625 T8633 T8640 T8611 T8618 T8625 T8633 T8640 T8614 T8618 T8625 T8633 T8640 T8614 T8618 T8625 T8633 T8640 T8647 T8618 T8625 T8632 T8739 T8730 T8736 T8766 T8766 T8774 T8711 T8718 T8725 T8732 T8739 T8736 T8736 T8766 T8766 T8774 T8718 T8725 T8732 T8739 T8736 T8830 T8810 T8614 T8817 T8824 T8831 T8838 T8845 T8852 T8859 T8866 T8767 T8714 T8718 T8726 T88803 T8810 T8868 T8895 T8895 T8896 T8972 T8799 T8986 T8993 T8930 T8937 T8944 T8951 T8986 T8999 T9066 T9043 T9050 T9057 T9064 T9071 T9078 T9085 T9092 T9086 T9043 T9050 T9057 T9044 T9011 T9014 T90		78390	78398	78405	78412		78426	78433	78440	78447	78455	2	
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611 78604 78611 78618 78625 78689 78704 78711 78718 78757 78739 7 5 613 78746 78753 78760 78767 78774 78781 78789 78796 78803 78810 8 6 614 78817 78824 78831 78838 78845 78852 78859 78866 78873 78800 9 6 615 78888 78895 78902 78909 78916 78923 78930 78937 78944 78851 6 616 78958 78965 78972 78979 78986 78993 78900 79007 79014 79021 79014 79021 79014 79078 79085 79092 79036 79043 79050 79057 79064 79071 79078 79058 79085 79092 6 79113 79120 79127 79134 79141 79148 79148 79148 79148 79148 79221			78540	78547	78554	78561	78569	78576	78583	78590	78597		4
613 78746 78753 78760 78767 7874 7881 7889 7896 78803 78810 8 6 6 6 6 6 74876 78871 78824 78831 78838 78845 78852 78859 78866 78873 78880 9 6 6 6 78873 78880 78895 78965 78972 78909 78916 78923 78930 78937 78944 78951 78929 78936 78943 79000 79007 79014 79021 79029 79036 79043 79050 79057 79064 79071 79078 79085 79092 6 6 79039 79106 79113 79120 79127 79134 79141 79148 79155 79162 6 79169 79169 79169 79169 79176 79183 79190 79197 79204 79211 79218 79225 79232 6 6 79239 79246 79253 79260 79267 79274 79281 79288 79295 79302 6 6 79309 79316 79323 79330 79337 79344 79351 79358 79365 79372 79349 79449 79456 79463 79470 79477 79414 79421 79428 79365 79442 6 6 79463 79440 79470 79414 79421 79428 79435 79442 6 79450 79460 79470 79477 79484 79491 79498 79505 79511 6 6 79463 79460 79470 79477 79484 79491 79498 79505 79511 6 79525 79532 79539 79546 79553 79560 79567 79574 79581 6 79525 79532 79539 79546 79553 79560 79567 79574 79581 79525 79644 79671 79678 79685 79692 79690 79706 79713 79720 79684 79671 79678 79685 79692 79699 79706 79713 79720 79684 79671 79678 79685 79692 79690 79706 79713 79720 79734 79741 79748 79754 79761 79768 79775 79782 79788 6 79872 79874 79886 79893 79900 79906 79913 79920 79927 6 6 79865 79872 79879 79886 79893 79900 79906 79913 79920 79927 6 6 79865 79872 79879 79886 79893 79900 79906 79913 79920 79927 6 6 79833 80100 80017 80024 80030 80037 80044 80051 80058 80065 1 1 6 6 7 80000 80017 80024 80030 80037 80044 80051 80058 80065 1 1 6 6 7 80000 80016 80113 80120 80127 80134 2 1 6 6 7 80000 80016 8013 80140 80147 80154 80161 80168 80175 80182 80188 80195 80202 3 2 8 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	611	78604	78611	78618	78625	78633	78640	78647	78654	78661	78668	6	4
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619 79169 79176 79183 79190 79197 79204 79211 79218 79225 79232 620 79239 79246 79253 79260 79267 79274 79281 79288 79295 79302 621 79309 79316 79323 79330 79337 79344 79351 79358 79352 79372 622 79379 79366 79333 79400 79417 79444 79421 79428 79435 79435 79485 79435 79484 79491 79498 79505 79511 623 79449 79456 79463 79470 79477 79484 79491 79498 79505 79511 624 79518 79525 79532 79539 79546 79533 79600 79630 79537 79544 79630 79637 79644 79650 79577 79784 79671 79678 79685 79699 79706 79713 <td></td> <td>79029</td> <td>79036</td> <td>79043</td> <td>79050</td> <td>79057</td> <td>79064</td> <td>79071</td> <td>79078</td> <td>79085</td> <td>79092</td> <td></td> <td></td>		79029	79036	79043	79050	79057	79064	79071	79078	79085	79092		
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623 79449 79456 79463 79470 79477 79484 79911 79498 79905 79511 624 79518 79525 79532 79539 79566 79560 79567 79574 79581 625 79588 79595 79602 79609 79616 79630 79637 79644 79650 626 79657 79644 79671 79678 79685 79692 79699 79706 79713 79720 627 79727 79734 79741 79748 79754 79761 79768 79775 79782 79789 628 79796 79803 79810 79817 79824 79831 79837 79844 79851 79858 629 79865 79872 79879 79886 79893 79900 79906 79913 79920 79927 6 630 79934 79941 79948 79955 79969 79975 7				79183	79190								
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625 79588 79595 79602 79609 79616 79623 79630 79637 79644 79650 626 79657 79664 79671 79678 79685 79692 79699 79706 79713 79720 79720 79727 79734 79741 79748 79754 79761 79789 79789 79789 79789 79879 79817 79824 79831 79837 79844 79851 79858 79892 79865 79872 79879 79886 79893 79900 79906 79913 79920 79927 6 6 630 79934 79941 79948 79955 79962 79969 79975 79982 79989 79996 79913 79920 79927 6 6 631 80003 80010 80017 80024 80030 80037 80044 80051 80058 80065 1 1 1 633 80140 80147 80148 80113			79525	79532	79539		79553	79560	79567	79574	79581		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			79595	79602	79609	79616	79623	79630	79637	79644	79650		
627 79727 79734 79741 79748 79754 79761 79768 79775 79782 79789 628 79796 79803 79810 79817 79824 79831 79837 79844 79851 79858 629 79865 79872 79879 79886 79990 79906 79913 79920 79927 6 630 79934 79941 79948 79955 79962 79969 79975 79982 79989 79996 631 80003 80017 80024 80030 80037 80044 80051 80058 80065 1 1 632 80072 80079 80085 80092 80099 80106 80113 80120 80127 80134 2 1 633 80140 80147 80154 80161 80168 80175 80182 80188 80195 80202 3 2 634 80290 80	626	79657	79664	79671	79678	79685	79692	79699	79706	79713	79720		
629 79865 79872 79879 79886 79893 79900 79906 79913 79920 79927 6 630 79934 79941 79948 79955 79962 79969 79975 79982 79989 79996 79966 79975 79982 79989 79966 79975 79982 79989 79966 79975 79982 79989 79996 79975 79982 79989 79996 79975 79982 79989 79996 79975 79982 79989 79996 79975 79982 79989 79996 79975 79982 79989 79996 79975 79982 79989 79996 79975 79982 79989 79996 79975 79982 79989 79986 79982 79989 79986 79960 8013 80052 80143 80161 8013 8012 80181 8012 80184 8021 80202 3 2 80264 80271 4 2 <td>627</td> <td>79727</td> <td>79734</td> <td>79741</td> <td>79748</td> <td>79754</td> <td>79761</td> <td>79768</td> <td>79775</td> <td>79782</td> <td>79789</td> <td></td> <td></td>	627	79727	79734	79741	79748	79754	79761	79768	79775	79782	79789		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$			79803	79810	79817	79824	79831	79837	79844			-	
631 80003 80010 80017 80024 80030 80037 80044 80051 80058 80065 1 1 632 80072 80079 80085 80092 80099 80106 80113 80120 80127 80134 2 1 633 80140 80147 80154 80161 80168 80175 80182 80188 80195 80202 3 2 634 80209 80216 80223 80229 80236 80243 80250 80257 80264 80271 4 2 635 80277 80284 80291 80298 80305 80312 80318 80325 80332 80339 5 3 636 80346 80353 80359 80366 80373 80380 80387 80393 80400 80407 6 4 637 80414 80421 80428 80434 80441 80448 80455 80462													0
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		80003									80065	1	1
633 80140 80147 80154 80161 80168 80175 80182 80188 80195 80202 3 2 634 80209 80216 80223 80229 80236 80243 80250 80257 80264 80271 4 2 635 80277 80284 80291 80298 80305 80312 80318 80325 80332 80339 803059 80366 80373 80380 80387 80389 80400 80407 6 4 637 80414 80421 80428 80434 80441 80445 80468 80475 7 4 638 80482 80489 80496 80502 80509 80516 80523 80530 80543 8 5 639 80550 80557 80564 80570 80577 80584 80591 80598 80604 80611 9 5		80072	80079	80085			80106	80113	80120	80127	80134	$\hat{2}$	
634 80209 80216 80223 80229 80236 80243 80250 80257 80264 80271 4 2 635 80277 80284 80291 80298 80305 80312 80318 80325 80332 80339 5 3 636 80346 80353 80359 80366 80373 80380 80387 80393 80400 80407 6 4 637 80414 80421 80428 80434 80441 804455 80462 80468 80475 7 4 638 80482 80489 80496 80502 80509 80516 80523 80530 80536 80543 8 5 639 80550 80557 80564 80570 80577 80584 80591 80598 80604 80611 9 5	633	80140	80147	80154	80161	80168	80175					3	2
636 80346 80353 80359 80366 80373 80380 80387 80393 80400 80407 6 4 637 80414 80421 80428 80434 80441 80448 80455 80462 80468 80475 7 4 638 80482 80489 80496 80502 80509 80516 80523 80530 80536 80543 8 5 639 80550 80557 80564 80570 80577 80584 80591 80598 80604 80611 9 5								-				4	2
637 80414 80421 80428 80434 80441 80448 80455 80462 80468 80475 7 4 638 80482 80489 80496 80502 80509 80516 80523 80530 80536 80543 8 5 639 80550 80557 80564 80570 80577 80584 80591 80598 80604 80611 9 5													
638 80482 80489 80496 80502 80509 80516 80523 80530 80536 80543 8 5 639 80550 80557 80564 80570 80577 80584 80591 80598 80604 80611 9 5				80359			80448				80475		
639 80550 80557 80564 80570 80577 80584 80591 80598 80604 80611 9 5													5
													5
No. 0 1 2 3 4 5 6 7 8 9	-	ļ											
	No.	0	1	2	3	4	5	6	7	8	9		

TABLE 42.

No	. 640070	00.							L	og. 80618—	-8451	10.
No.	0	1	2	3	4	5	6	7	8	9		
640	80618	80625	80632	80638	80645	80652	80659	80665	80672	80679		7
641	80686	80693	80699	80706	80713	80720	80726	80733	80740	80747	1	1
642 643	80754 80821	80760 80828	80767 80835	80774 80841	80781 80848	80787 80855	80794 80862	80801 80868	80808 80875	80814 80882	$\frac{1}{2}$	1
644	80889	80895	80902	80909	80916	80922	80929	80936	80943	80949	3	2 3 4
645	80956	80963	80969	80976	80983	80990	80996	81003	81010	81017	4	3
646	81023	81030	81037	81043	81050	81057	81064	81070	81077	81084	5 6	
647	81090	81097	81104	81111	81117	81124	81131	81137	81144	81151	7	4 5 6
648 649	81158 81224	81164 81231	81171 81238	81178 81245	81184 81251	81191 81258	81198 81265	81204 81271	81211 81278	81218 81285	8	
650	81291	81298	81305	81311	81318	81325	81331	81338	81345	81351	9	6
651	81358	81365	81371	81378	81385	81391	81398	81405	81411	81418		
652	81425	81431	81438	81445	81451	81458	81465	81471	81478	81485		
653 654	81491 81558	81498 81564	81505 81571	81511 81578	$81518 \\ 81584$	81525 81591	81531 81598	81538 81604	81544 81611	81551 81617		
655	81624	81631	81637	81644	81651	81657	81664	81671		81684		
656	81690	81697	81637 81704	81644 81710	81717	81723	81730	81737	81677 81743	81750		
657	81757	81763	81770	81776	81783	81790	81796	81803	81809	81816		
658	81823	81829	81836	81842	81849	81856	81862	81869	81875	81882		
659	81889	81895	81902	81908	81915	81921	81928	81935	81941	81948		
660 661	81954 82020	81961 82027	81968 82033	81974 82040	81981 82046	81987 82053	81994 82060	82000 82066	82007 82073	82014 82079		
662	82086	82092	82099	82105	82112	82119	82125	82132	82138	82145		
663	82151	82158	82164	82171	82178	82184	82191	82197	82204	82210		
664	82217	82223	82230	82236	82243	82249	82256	82263	82269	82276		
665	82282	82289	82295	82302	82308	82315	82321	82328	82334	82341		
666 667	82347 82413	$82354 \\ 82419$	$82360 \\ 82426$	82367 82432	82373 82439	$82380 \\ 82445$	$82387 \\ 82452$	82393 82458	82400 82465	82406 82471		
668	82478	82484	82491	82497	82504	82510	82517	82523	82530	82536		
669	82543	82549	82556	82562	82569	82575	82582	82588	82595	82601		
670	82607	82614	82620	82627	82633	82640	82646	82653	82659	82666		
$671 \\ 672$	$\begin{vmatrix} 82672 \\ 82737 \end{vmatrix}$	$82679 \\ 82743$	82685 82750	82692 82756	82698 82763	$82705 \\ 82769$	82711° 82776	82718 82782	82724 82789	82730 82795		
673	82802	82808	82814	82821	82827	82834	82840	82847	82853	82860		
674	82866	82872	82879	82885	82892	82898	82905	82911	82918	82924		
675	82930	82937	82943	82950	82956	82963	82969	82975	82982	82988		
676	82995 83059	83001	83008 83072	83014	83020	83027	83033	83040	83046	83052		
677 678	83123	83065 83129	83136	83078 83142	83085 83149	83091 83155	$83097 \\ 83161$	83104 83168	83110 83174	83117 83181		
679	83187	83193	83200	83206	83213	83219	83225	83232	83238	83245		
680	83251	83257	83264	83270	83276	83283	83289	83296	83302	83308		
681	83315	83321	83327	83334	83340	83347	83353	83359	83366	83372		
682 683	83378 83442	83385 83448	83391 83455	83398 83461	83404 83467	83410 83474	83417 83480	83423 83487	83429 83493	83436 83499		
684	83506	83512	83518	83525	83531	83537	83544	83550	83556	83563		
685	83569	83575	83582	83588	83594	83601	83607	83613	83620	83626		
686	83632	83639	83645	83651	83658	83664	83670	83677	83683	83689		
687 688	83696 83759	83702 83765	83708 83771	83715	83721	83727	83734	83740	83746	83753		
689	83822	83828	83835	83778 83841	83784 83847	83790 83853	83797 83860	83803 83866	$83809 \\ 83872$	83816 83879		
690	83885	83891	83897	83904	83910	83916	83923	83929	83935	83942		6
691	83948	83954	83960	83967	83973	83979	83985	83992	83998	84004	1	1
692	84011	84017	84023	84029	84036	84042	84048	84055	84061	84067	2	1
693 694	84073 84136	84080 84142	84086 84148	84092 84155	84098 84161	84105 84167	84111 84173	84117 84180	84123 84186	84130 84192	3	2
695	84198	84205	84211	84217	84223	84230	84236	84242	84248	84255	4 5	2 2 3 4
696	84261	84267	84273	84280	84286	84292	84298	84305	84311	84317	6	4
697	84323	84330	84336	84342	84348	84354	84361	84367	84373	84379	7	4
698 699	84386 84448	84392 84454	84398 84460	84404 84466	84410	84417	84423	84429	84435	84442	8	5
000	01710	01101	01100	04400	84473	84479	84485	84491	84497	84504	9	0
No.	0	1	2	3	4	5	6	7	8	9		
							-					

TABLE 42.

No.	700076	00.							L	og. 84510-	-8808	1.
No.	0	1	2	3	4	5	6	7	8	9		1
700	84510	84516	84522	84528	84535	84541	84547	84553	84559	84566		7
701	84572	84578	84584	84590	84597	84603	84609	84615	84621	84628	,	
$702 \\ 703$	84634 84696	$84640 \\ 84702$	84646 84708	$84652 \\ 84714$	84658 84720	84665 84726	84671 84733	84677 84739	84683 84745	84689 84751	$egin{array}{c} 1 \ 2 \end{array}$	1
704	84757	84763	84770	84776	84782	84788	84794	84800	84807	84813	3	2
705	84819	84825	84831	84837	84844	84850	84856	84862	84868	84874	$\begin{bmatrix} 4 \\ 5 \end{bmatrix}$	$\frac{3}{4}$
706 707	84880 84942	84887 84948	84893 84954	84899 84960	84905	84911 84973	84917	84924 84985	84930 84991	84936	6	4
707	85003	85009	85016	85022	84967 85028	85034	84979 85040	85046	85052	84997 85058	7	5
709	85065	85071	85077	85083	85089	85095	85101	85107	85114	85120	8 9	6
710	85126	85132	85138	85144	85150	85156	85163	85169	85175	85181		0
711 712	$85187 \\ 85248$	85193 85254	85199 85260	$85205 \\ 85266$	85211 85272	85217 85278	$85224 \\ 85285$	85230 85291	85236 85297	85242 85303		
713	85309	85315	85321	85327	85333	85339	85345	85352	85358	85364	ĺ	
714	85370	85376	85382	85388	85394	85400	85406	85412	85418	85425		
715 716	85431 85491	85437 85497	85443 85503	85449 85509	85455 85516	85461 85522	85467 85528	85473 85534	85479 85540	85485 85546		
717	85552	85558	85564	85570	85576	85582	85588	85594	85600	85606		
718	85612	85618	85625	85631	85637	85643	85649	85655	85661	85667		
$\frac{719}{720}$	$\frac{85673}{85733}$	$\frac{85679}{85739}$	$\frac{85685}{85745}$	$\frac{85691}{85751}$	$\frac{85697}{85757}$	$\frac{85703}{85763}$	$\frac{85709}{85769}$	85715 85775	85721 85781	85727 85788		
721	85794	85800	85806	85812	85818	85824	85830	85836	85842	85848		
722	85854	85860	85866	85872	85878	85884	85890	85896	85902	85908		
723 724	85914 85974	85920 85980	85926 85986	85932 85992	85938 85998	85944 86004	85950 86010	85956 86016	85962 86022	85968 86028		
725	86034	86040	86046	86052	86058	86064	86070	86076	86082	86088		6
726	86094	86100	86106	86112	86118	86124	86130	86136	86141	86147	1	1
727 728	86153 86213	86159 86219	$86165 \\ 86225$	$86171 \\ 86231$	86177 86237	86183	86189	86195	86201	86207	2	1
729	86273	86279	86285	86291	86297	86243 86303	86249 86308	86255 86314	86261 86320	86267 86326	3	2
730	86332	86338	86344	86350	86356	86362	86368	86374	86380	86386	4 5	$\frac{2}{3}$
731 732	86392	86398 86457	86404 86463	86410 86469	86415	86421	86427	86433	86439	86445	6	4
733	86451 - 86510	86516	86522	86528	86475 86534	86481 86540	86487 86546	86493 86552	86499 86558	86504 86564	7 8	4 5
734	86570	86576	86581	86587	86593	86599	86605	86611	86617	86623	9	5
735	86629	86635	86641 86700	86646	86652	86658	86664	86670	86676	86682		
736 737	86688 86747	86694 86753	86759	86705 86764	86711 86770	86717 86776	86723 86782	86729	86735 86794	86741 86800		
738	86806	86812	86817	86823	86829	86835	86841	86847	86853	86859		
739	86864	86870	86876	86882	86888	86894	86900	86906	86911	86917		
740 741	86923 86982	86929 86988	86935 86994	86941 86999	86947 87005	86953 87011	86958 87017	86964 87023	86970 87029	86976	1	
742	87040	87046	87052	87058	87064	87070	87075	87081	87087	87093		
743	87099 87157	87105	87111	87116	87122	87128 87186	87134	87140	87146	87151		
$\frac{744}{745}$	$\frac{87157}{87216}$	$\frac{87163}{87221}$	$\frac{87169}{87227}$	87175 87233,	$\frac{87181}{87239}$	$\frac{87186}{87245}$	87192	$\frac{87198}{87256}$	87204 87262	87210 87268		
746	87274	87280	87286	87291	87297	87303	87309	87315	87320	87326		
747	87332	87338	87344	87349	87355	87361	87367	87373	87379	87384		
748 749	87390 87448	87396 87454	87402 87460	87408 87466	87413 87471	87419 87477	87425 87483	87431 87489	87437 87495	87442 87500	-	5
$\frac{750}{750}$	87506	87512	87518	87523	87529	87535	87541	87547	87552	87558	-	- 0
751	87564	87570	87576	87581	87587	87593	87599	87604	87610	87616	1	1
$752 \\ 753$	87622 87679	87628 87685	87633 87691	87639 87697	87645 87703	87651 87708	87656 87714	87662 87720	87668 87726	87674 87731	$\begin{bmatrix} 2\\3 \end{bmatrix}$	$\frac{1}{2}$
754	87737	87743	87749	87754	87760	87766	87772	87777	87783	87789	4	2
755	87795	87800	87806	87812	87818	87823	87829	87835	87841	87846	5	3
756 757	87852 87910	87858 87915	87864 87921	87869 87927	87875 87933	87881 87938	87887 87944	87892 87950	87898 87955	87904 87961	$\begin{bmatrix} 6 \\ 7 \end{bmatrix}$	$\frac{3}{4}$
758	87967	87973	87978	87984	87990	87996	88001	88007	88013	88018	8	4
759	88024	88030	88036	88041	88047	88053	88058	88064	88070	88076	9	5
No.	0	1	2	3	4	5	6	7	8	9		
						1					1	

TABLE 42.

No.	, 7600—8200. Log. 88081—913						81.					
No.	0	1	2	3	4	5	6	7	8	9		
760	88081	88087	88093	88098	88104	88110	88116	88121	88127	88133		6
761	88138	88144	88150	88156	88161	88167	88173	88178	88184	88190	1	1
762	88195	88201	88207	88213	88218	88224	88230	88235	88241	88247	$\frac{1}{2}$	1
763	88252	88258	88264	$88270 \\ 88326$	88275 88332	88281 88338	$88287 \\ 88343$	88292 88349	88298 88355	88304 88360	3	2
764	88309	88315	88321	88383	88389	88395	88400	88406	88412	88417	4	2 2 3 4
765 766	88366 88423	88372 88429	88377 88434	88440	88446	88451	88457	88463	88468	88474	5	3
767	88480	88485	88491	88497	88502	88508	88513	88519	88525	88530	6 7	4
768	88536	88542	88547	88553	88559	88564	88570	88576	88581	88587	8	4 5 5
769	88593	88598	88604	88610	88615	88621	88627	88632	88638	88643	9	5
770	88649	88655	88660	88666	88672	88677	88683	88689	88694	88700		
771	88705	88711 88767	88717 88773	88722 88779	88728 88784	88734 88790	88739 88795	88745 88801	88750 88807	88756 88812		
772 773	88762 88818	88824	88829	88835	88840	88846	88852	88857	88863	88868		
774	88874	88880	88885	88891	88897	88902	88908	88913	88919	88925		
775	88930	88936	88941	88947	88953	88958	88964	88969	88975	88981		
776	88986	88992	88997	89003	89009	89014	89020	89025	89031	89037		
777	89042	89048	89053	89059	89064	89070	89076	89081	89087	89092		
778	89098	89104	89109	89115 89170	89120 89176	$89126 \\ 89182$	$89131 \\ 89187$	89137 89193	89143 89198	89148 89204		
779	89154	$\frac{89159}{89215}$	$\frac{89165}{89221}$	89226	89232	89237	89243	89248	89254	89260		
780 781	89209 89265	89215	89221	89282	89287	89293	89298	89304	89310	89315		
782	89321	89326	89332	89282 89337	89343	89348	89354	89360	89365	89371		
783	89376	89382	89387	89393	89398	89404	89409	89415	89421	89426		
784	89432	89437	89443	89448	89454	89459	89465	89470	89476	89481		
785	89487	89492	89498	89504	89509	89515	89520	89526	89531	89537		
786	89542	89548	89553	$89559 \\ 89614$	89564	89570 89625	89575 89631	89581 89636	89586 89642	89592 89647		
787 788	89597 89653	89603 89658	89609 89664	89669	89620 89675	89680	89686	89691	89697	89702		
789	89708	89713	89719	89724	89730	89735	89741	89746	89752	89757		
790	89763	89768	89774	89779	89785	89790	89796	89801	89807	89812		
791	89818	89823	89829	89834	89840	89845	89851	89856	89862	89867		
792	89873	89878	89883	89889	89894	89900	89905	89911	89916	89922		
793	89927	89933	89938	89944	89949 90004	89955	89960	89966 90020	89971	89977 90031		
794	89982	89988	89993	89998 90053	90059	$\frac{90009}{90064}$	$\frac{90015}{90069}$	90020	90020	90086		
795 796	90037 90091	90042 90097	90048 90102	90108	90039	90119	90009	90129	90135	90140		
797	90146	90151	90157	90162	90168	90173	90179	90184	90189	90195		
798	90200	90206	90211	90217	90222	90227	90233	90238	90244	90249		
799	90255	90260	90266	90271	90276	90282	90287	90293	90298	90304		
800	90309	90314	90320	90325	90331	90336	90342	90347	90352	90358		
801	90363	90369	90374	90380	90385	90390	90396	90401	90407	90412		
802 803	90417 90472	90423 90477	90428 90482	90434 90488	90439 90493	90445 90499	90450 90504	90455 90509	90461 90515	90466 90520		
804	90526	90531	90536	90542	90547	90553	90558	90563	90569	90574		
805	90580	90585	90590	90596	90601	90607	90612	90617	90623	90628		
806	90634	90639	90644	90650	90655	90660	90666	90671	90677	90682		
807	90687	90693	90698	90703	90709	90714	90720	90725	90730	90736		
808	90741	90747	90752	90757	90763	90768 90822	90773	90779	90784	90789		-
809	90795	$\frac{90800}{90854}$	$\frac{90806}{90859}$	90811	90816		90827	$\frac{90832}{90886}$	90838	90843		5
810 811	90849 90902	90854	90859	$90865 \\ 90918$	90870 90924	90875 90929	90881 90934	90886	90891 90945	90897	1	1
812	90956	90961	90966	90972	90977	90982	90988	90993	90998	91004	2	1
813	91009	91014	91020	91025	91030	91036	91041	91046	91052	91057	3	2
814	91062	91068	91073	91078	91084	91089	91094	91100	91105	91110	4	3
815	91116	91121	91126	91132	91137	91142	91148	91153	91158	91164	5	3
816	91169	91174	91180 91233	$91185 \\ 91238$	91190 91243	91196 91249	91201	91206	$91212 \\ 91265$	91217	6 7	3
817 818	91222 91275	$91228 \\ 91281$	91233	91238	91243	91249	$91254 \\ 91307$	91259 91312	91265	91270 91323	8	3 4 4
819	91328	91334	91339	91344	91350	91355	91360	91365	91371	91376	9	5
												!
No.	0	1	2	3	4	5	6	7	8	9		
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TABLE 42.

1	No. 8	82008800).							1	Log. 91381	94	448
	No.	0	1	2	3	4	5	6	7	8	9		
١	820	91381	91387	91392	91397	91403	91408	91413	91418	91424	91429		6
1	$821 \\ 822$	$91434 \\ 91487$	$91440 \\ 91492$	$91445 \\ 91498$	91450 91503	$91455 \\ 91508$	$91461 \\ 91514$	$91466 \\ 91519$	$91471 \\ 91524$	$91477 \\ 91529$	91482 91535	1	1
١	823	91540	91545	91551	91556	91561	91566	91572	91577	91582	91587		1
١	824	91593	91598	91603	91609	91614	91619	91624	91630	91635	91640	3	2
ł	825	91645	91651	91656	91661	91666	91672	91677	91682	91687	91693	2 3 4 5	$\frac{2}{2}$
ı	826	$91698 \\ 91751$	91703	91709	91714	91719	$91724 \\ 91777$.91730	91735	91740	91745	6	4
Н	827	91751	91756	91761	91766	91772	91777	91782	91787	91793	91798	7	4
1	828	91803	91808	91814	91819	91824	91829	91834	91840	91845	91850	8	4 5
ŀ	829 830	$\frac{91855}{91908}$	$\frac{91861}{91913}$	$\frac{91866}{91918}$	$\frac{91871}{91924}$	$\frac{91876}{91929}$	$\frac{91882}{91934}$	91887 91939	$\frac{91892}{91944}$	$\frac{91897}{91950}$	$\frac{91903}{91955}$	9	5
1	831	91960	91965	91971	91976	91981	91986	91991	91997	92002	92007		
Н	832	92012	92018	92023	92028	92033	92038	92044	92049	92054	92059		
Т	833	92065	92070	92075	92080	92085	92091	92096	92101	92106	92111		
	834	92117	92122	92127	92132	92137	92143	92148	92153	92158	92163		
ı	835	92169	92174	92179	92184	92189	92195	92200 92252	92205	92210	92215		
1	836 837	$92221 \\ 92273$	$92226 \\ 92278$	$\begin{array}{c} 92231 \\ 92283 \end{array}$	$92236 \\ 92288$	92241	$92247 \\ 92298$	$92252 \\ 92304$	$92257 \\ 92309$	$92262 \\ 92314$	92267 92319		
н	838	92324	92330	92335	92340	$92293 \\ 92345$	92350	92355	92361	92314 92366	92319		
	839	92376	92381	92387	92392	92397	92402	92407	92412	92418	92423		
ŀ	840	92428	92433	92438	92443	92449	92454	92459	92464	92469	92474		
ı	841	92480	92485	92490	92495	92500	92505	92511	92516	92521	92526		
1	842	92531	92536	92542	92547	92552	92557	92562	92567	92572	92578		
	843	92583	92588	92593	92598	92603	92609	92614	92619	92624	92629		
-	844	92634	92639	$\frac{92645}{92696}$	92650	92655	92660	92665	$\frac{92670}{92722}$	92675	92681		5
1	845 846	92686 92737	92691 92742	92090	$\begin{array}{c} 92701 \\ 92752 \end{array}$	$92706 \\ 92758$	$92711 \\ 92763$	$92716 \\ 92768$	$92722 \\ 92773$	$92727 \\ 92778$	92732 92783		
1	847	92788	92793	92799	92804	92809	92814	92819	92824	92829	92834	1	1
1	848	92840	92845	92850	92855	92860	92865	92870	92875	92881	92886	2 3	1
	849	92891	92896	92901	92906	92911	92916	92921	92927	92932	92937	4	2
1	850	92942	92947	92952	92957	92962	92967	92973	92978	92983	92988	5	2 2 3 3
1	$851 \\ 852$	92993 93044	92998 93049	93003 93054	93008	93013	93018	93024	93029 93080	$93034 \\ 93085$	93039	6	
1	853	93095	93100	93105	93059 93110	93064 93115	93069 93120	$93075 \\ 93125$	93131	93136	93090 93141	7	4
1	854	93146	93151	93156	93161	93166	93171	93176	93181	93186	93192	8	4 5
t	855	93197	93202	93207	93212	93217	93222	93227	93232	93237	93242		
1	856	93247	93252	93258	93263	93268	93222 93273	$93227 \\ 93278$	93283	93288	93293		
	857	93298	93303	93308	93313	93318	93323	$93328 \\ 93379$	93334	93339	93344		
H	858 859	93349 93399	933 54 93 404	93359 93409	93364 93414	$93369 \\ 93420$	$93374 \\ 93425$	93379 93430	93384 93435	93389 93440	93394 93445		
ŀ	860	93450	93455	93460	93465	93470	93475	93480	93485	93490	93495		
1	861	93500	93505	93510	93515	93520	93526	93531	93536	93541	93546		
1	862	93551	93556	93561	93566	93571	93576	93581	93586	93591	93596		
0	863	93601	93606	93611	93616	93621	93626	93631	93636	93641	93646		
	864	93651	93656	93661	93666	93671	93676	93682	93687	93692	93697		
	865	93702 93752	93707	93712	93717	93722	93727	93732	93737	93742	93747		
	866 867	93752	93757 93807	$93762 \\ 93812$	93767 93817	$93772 \\ 93822$	93777 • 93827	93782 93832	93787 93837	93792 93842	93797 93847		
	868	93852	93857	93862	93867	93872	93877	93882	93887	93892	93897		
	869	93902	93907	93912	93917	93922	93927	93932	93937	93942	93947		4
	870	93952	93957	93962	93967	93972	93977	93982	93987	93992	93997		
	871	94002	94007	94012	94017	94022	94027	94032	94037	94042	94047	1	0
	872 873	$94052 \\ 94101$	94057 94106	$94062 \\ 94111$	$94067 \\ 94116$	$94072 \\ 94121$	$94077 \\ 94126$	94082 94131	94086 94136	94091 94141	94096 94146	2	1
	874	94151	94156	94161	94166	94171	94176	94181	94186	94191	94196	$\frac{3}{4}$	1 2
1	875	94201	94206	94211	94216	94221	94226	94231	94236	94240	94245	5	2
1	876	94250	94255	94260	94265	94270	94275	94280	94285	94290	94295	6	2 2 3 3
	877	94300	94305	94310	94315	94320	94325	94330	94335	94340	94345	7	3
1	878	94349	94354	94359	94364	94369	94374	94379	94384	94389	94394	8 9	3 4
1	879	94399	94404	94409	94414	94419	94424	94429	94433	94438	94443	9	4
	No.	0	1	2	3	4	5	6	7	8	9		
L					1		1		1				

TABLE 42.

No.	8800940	0.							I	og. 94448-	978	313.
No.	0 .	1	2	3	4	5	6	7	8	9		
880	94448	94453	94458	94463	94468	94473	94478	94483	94488	94493		5
881	94498	94503	94507	94512	94517	94522	94527	94532	94537	94542	1	1
882	94547	94552	94557	94562	94567	94571	94576	94581	94586	94591	$\frac{1}{2}$	1 1
883	$94596 \\ 94645$	94601 94650	94606 94655	94611 94660	94616 94665	94621 94670	94626 94675	94630 94680	94635	94640 94689	3	2
.884 885	$\frac{94045}{94694}$	94699	94704	$\frac{94000}{94709}$	94714	94719	94724	$\frac{94000}{94729}$	94734	94738	4	2 2 3
886	94743	94748	94753	94758	94763	94768	94773	94778	94783	94787	5	3
887	94792	94797	94802	94807	94812	94817	94822	94827	94832	94836	6	3
888	94841	94846	94851	94856	94861	94866	94871	94876	94880	94885	7 8	4
889	94890	94895	94900	94905	94910	94915	94919	94924	94929	94934	9	5
890	94939	94944	94949	94954	94959	94963	94968	94973	94978	94983	Ů	1.
891	94988	$94993 \\ 95041$	94998 95046	95002 95051	95007	95012	95017	95022	95027	95032		
892 893	95036 95085	95041	95095	95100	95056 95105	95061 95109	95066 95114	95071	95075 95124	95080 95129		
894	95134	95139	95143	95148	95153	95158	95163	95168	95173	95177		
895	95182	95187	95192	95197	95202	95207	95211	95216	95221	95226		
896	95231	95236	95240	95245	95250	95255	95260	95265	95270	95274		
897	95279	95284	95289	95294	95299	95303	95308	95313	95318	95323		
898	95328	95332	95337 95386	95342	95347	95352	95357	95361	95366	95371		
899	95376	$\frac{95381}{05420}$	95380	95390	95395	95400	95405	95410	95415	95419		
900 901	$95424 \\ 95472$	95429 95477	95434 95482	95439 95487	$95444 \\ 95492$	95448 95497	95453 95501	95458	95463 95511	95468 95516		
902	95521	95525	95530	95535	95540	95545	95550	95554	95559	95564		
903	95569	95574	95578	95583	95588	95593	95598	95602	95607	95612		
904	95617	95622	95626	95631	95636	95641	95646	95650	95655	95660		
905	95665	95670	95674	95679	95684	95689	95694	95698	95703	95708		
906	95713	95718	95722	95727	95732	95737	95742	95746	95751	95756		
907 908	95761 95809	$95766 \\ 95813$	95770 95818	95775 95823	95780 95828	95785	95789	95794	95799 95847	95804		
909	95856	95861	95866	95871	95875	95832 95880	95837 95885	95842 95890	95895	95852		
910	95904	95909	95914	95918	95923	95928	95933	95938	95942	95947		
911	95952	95957	95961	95966	95971	95976	95980	95985	95990	95995		
912	95999	96004	96009	96014	96019	96023	96028	96033	96038	96042		
913	96047	96052	96057	96061	96066	96071	96076	96080	96085	96090		
914	96095	96099	96104	96109	96114	96118	96123	96128	96133	96137		
915 916	96142 96190	96147 96194	96152 96199	96156 96204	96161 96209	96166 96213	96171 96218	96175 96223	96180 96227	96185		
917	96237	96242	96246	96251	96256	96213	96265	96223	96275	96232 96280		
918	96284	96289	96294	96298	96303	96308	96313	96317	96322	96327		
919	96332	96336	96341	96346	96350	96355	96360	96365	96369	96374		
920	96379	96384	96388	96393	96398	96402	96407	96412	96417	96421		
921	96426	96431	96435	96440	96445	96450	96454	96459	96464	96468		
922 923	96473 96520	96478 96525	96483	96487	96492	96497	96501	96506	96511	96515		
923	96567	96572	96530 96577	96534 96581	96539 96586	96544 96591	96548 96595	96553 96600	96558 96605	96562 96609		
925	96614	96619	96624	96628	96633	96638	$\frac{96642}{}$	96647	96652	96656		
926	96661	96666	96670	96675	96680	96685	96689	96694	96699	96703		
927	96708	96713	96717	96722 96769	96727	96731	96736	96741	96745	96750		
928	96755	96759	96764	96769	96774	96778	96783	96788	96792	96797		
929	96802	96806	96811	96816	96820	96825	96830	96834	96839	96844		4
930 931	96848	96853 96900	96858 96904	96862	96867	96872	96876	96881	96886	96890		
931	96895 96942	96946	96951	96909 96956	96914 96960	96918 96965	$96923 \\ 96970$	$96928 \\ 96974$	96932 96979	96937 96984	1	0
933	96988	96993	96997	97002	97007	97011	97016	97021	97025	97030	3	1
934	97035	97039	97044	97049	97053	97058	97063	97067	97072	97077	4	2
935	97081	97086	97090	97095	97100	97104	97109	97114	97118	97123	5	2
936	97128	97132	97137	97142	97146	97151	97155	97160	97165	97169	6	2 2 3 3
937	97174	97179	97183	97188	97192	97197	97202	97206	97211	97216	7	3
938 939	97220 97267	97225 97271	$97230 \\ 97276$	97234 97280	$97239 \\ 97285$	97243 97290	$97248 \\ 97294$	97253 97299	97257	97262	8 9	3 4
	01201	01211	01210	01200	01200	91290	31494	01200	97304	97308	ฮ	4
No.	0	1	2	3	4	5	6	7	8	9		

TABLE 42.

No.	9400——100	00.							I	og. 97313-	999	96.
No.	0	1	2	3	4	- 5	6	7	8	9		
940	97313	97317	97322	97327	97331	97336	97340	97345	97350	97354	_	5
941	97359	97364	97368	97373	97377	97382	97387	97391	97396	97400		
942	97405	97410	97414	97419	97424	97428	97433	97437	97442	97447	1	1
943	97451	97456	97460	97465	97470	97474	97479	97483	97488	97493	2	1
944	97497	97502	97506	97511	97516	97520	97525	97529	97534	97539	3	2
945	97543	97548	97552	97557	97562	97566	97571	97575	97580	97585	4	2
946	97589	97594	97598	97603	97607	97612	97617	97621	97626	97630	5	3
947	97635	97640	97644	97649	97653	97658	97663	97667	97672	97676	6	3
948	97681	97685	97690	97695	97699	97704	97708	97713	97717	97722	7	4
949	97727	97731	97736	97740	97745	97749	97754	97759	97763	97768	8	4
950	97772	97777	97782	97786	97791	97795	97800	97804	97809	97813	9	5
951	97818	97823	97827	97832	97836	97841	97845	97850	97855	97859	<u> </u>	1
952	97864		97873	97877	97882	97886	97891	97896	97900	97905		
		97868						97941				
953	97909	97914	97918	97923	97928	97932	97937		97946	97950	ı	
954	97955	97959	97964	97968	97973	97978	97982	97987	97991	97996	i	
955	98000	98005	98009	98014	98019	98023	98028	98032	98037	98041	•	
956	98046	98050	98055	98059	98064	98068	98073	98078	98082	98087		
957	98091	98096	98100	98105	98109	98114	98118	98123	98127	98132		
958	98137	98141	98146	98150	98155	98159	98164	98168	98173	98177		
959	98182	98186	98191	98195	98200	98204	98209	98214	98218	98223		
960	98227	98232	98236	98241	98245	98250	98254	98259	98263	98268		
961	98272	98277	98281	98286	98290	98295	98299	98304	98308	98313	ľ	
962	98318	98322	98327	98331	98336	98340	98345	98349	98354	98358		
963	98363	98367	98372	98376	98381	98385	98390	98394	98399	98403	l	
964	98408	98412	98417	98421	98426	98430	98435	98439	98444	98448		
											l	
965	98453	98457	98462	98466	98471	98475	98480	98484	98489	98493		
966	98498	98502	98507	98511	98516	98520	98525	98529	98534	98538		
967	98543	98547	98552	98556	98561	98565	98570	98574	98579	98583		
968	98588	98592	98597	98601	98605	98610	98614	98619	98623	98628	l	
969	98632	98637	98641	98646	98650	98655	98659	98664	98668	98673		
970	98677	98682	98686	98691	98695	98700	98704	98709	98713	98717		
971	98722	98726	98731	98735	98740	98744	98749	98753	98758	98762		
972	98767	98771	98776	98780	98784	98789	98793	98798	98802	98807		
973	98811	98816	98820	98825	98829	98834	98838	98843	98847	98851		
974	98856	98860	98865	98869	98874	98878	98883	98887	98892	98896		
975	98900	98905	98909	98914	98918	98923	98927	98932	98936	98941		
976	98945	98949	98954	98958	98963	98967	98972	98976	98981	98985		
977	98989	98994	98998	99003	99007	99012	99016	99021	99025	99029		
978			99043	99047	99052	99056	99061	99065	99069	99074		
	99034	99038	99087					99109		99118		
979	99078	99083		99092	99096	99100	99105		99114			
980	99123	99127	99131	99136	99140	99145	99149	99154	99158	99162		
981	99167	99171	99176	99180	99185	99189	99193	99198	99202	99207		
982	99211	99216	99220	99224	99229	99233	99238	99242	99247	99251		
983	99255	99260	99264	99269	99273	99277	99282	99286	99291	99295		
984	99300	99304	99308	99313	99317	99322	99326	99330	99335	99339		
985	99344	99348	99352	99357	99361	99366	99370	99374	99379	99383		
986	99388	99392	99396	99401	99405	99410	99414	99419	99423	99427		
987	99432	99436	99441	99445	99449	99454	99458	99463	99467	99471		
988	99476	99480	99484	99489	99493	99498	99502	99506	99511	99515		
989	99520	99524	99528	99533	99537	99542	99546	99550	99555	99559		4
990		99568	99572	99577	99581	99585	99590	99594	99599	99603		-
	99564										1	0
991	99607	99612	99616	99621	99625	99629	99634	99638	99642	99647	1	
992	99651	99656	99660	99664	99669	99673	99677	99682	99686	99691	2	1
993	99695	99699	99704	99708	99712	99717	99721	99726	99730	99734	3	1
994	99739	99743	99747	99752	99756	99760	99765	99769	99774	99778	4	$\frac{2}{2}$
995	99782	99787	99791	99795	99800	99804	99808	99813	99817	99822	5	2
996	99826	99830	99835	99839	99843	99848	99852	99856	99861	99865	6	2 3
997	99870	99874	99878	99883	99887	99891	99896	99900	99904	99909	7	3
998	99913	99917	99922	99926	99930	99935	99939	99944	99948	99952	8	3
999	99957	99961	99965	99970	99974	99978	99983	99987	99991	99996	9	4
No.	0	1	2	3	4	5	6	7	8	9		
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TABLE 43.

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Logarithmic Sines, Tangents, and Secants to every Point and Quarter Point of the Compass.

			, ————————————————————————————————————				
Points.	Sine.	Cosine.	Tangent.	Cotangent.	Secant.	Cosecant.	
0	Inf. neg.	10.00000	Inf. neg.	Infinite.	10.00000	Infinite.	8
1	8.69080	9. 99948	8. 69132	11. 30868	10.00052	11.30920	73
1	8.99130	9, 99790	8. 99340	11.00660	10.00210	11.00870	$7\frac{1}{2}$
23 4	9.16652	9.99527	9. 17125	10.82875	10.00473	10.83348	$7\frac{3}{4}$ $7\frac{1}{2}$ $7\frac{1}{4}$
1	9.29024	9. 99157	9. 29866	10.70134	10.00843	10.70976	7
11	9.38557	9.98679	9.39879	10.60121	10.01321	10. 61443	$6\frac{3}{4}$
11/2	9.46282	9.98088	9.48194	10.51806	10.01912	10.53718	$6\frac{\hat{1}}{2}$
13	9.52749	9. 97384	9.55365	10. 44635	10.02616	10.47251	$6\frac{3}{4}$ $6\frac{1}{2}$ $6\frac{1}{4}$
2	9.58284	9.96562	9.61722	10.38278	10.03438	10, 41716	$\frac{6}{5\frac{3}{4}}$
$2\frac{1}{4}$	9.63099	9.95616	9.67483	10.32517	10.04384	10.36901	$5\frac{3}{4}$
$2\frac{1}{2}$	9.67339	9.94543	9.72796	10.27204	10.05457	10.32661	$5\frac{1}{2}$
$ \begin{array}{c c} 2\frac{1}{2} \\ 2\frac{3}{4} \end{array} $	9.71105	9. 93335	9.77770	10. 22230	10.06665	10. 28895	$5\frac{1}{2}$ $5\frac{1}{4}$
3	9.74474	9. 91985	9.82489	10. 17511	10.08015	10. 25526	5
31	9.77503	9.90483	9.87020	10. 12980	10.09517	10.22497	43
$3\frac{1}{2}$	9.80236	. 9. 88819	9. 91417	10.08583	10.11181	10.19764	$4\frac{1}{2}$
3½ 3½ 3¾	9. 82708	9.86979	9. 95729	10.04271	10. 13021	10. 17292	$4\frac{3}{4}$ $4\frac{1}{2}$ $4\frac{1}{4}$
4	9,84949	9.84949	10.00000	10.00000	10.15051	10. 15051	4
	Cosine.	Sine.	Cotangent.	Tangent.	Cosecant.	Secant.	Points

Log. Sines, Tangents, and Secants.

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М.	Hour A. M.	Hour P. M.	Sine.	Diff. 1'.	Cosecant.	Tangent.	Diff. 1'.	Cotangent.	Secant.	Cosine.	М.
0	12 0 0	0 0 0	Inf. neg.		Infinite.	Inf. neg.		Infinite.	10,00000	10.00000	60
1	11 59 52	0 8	6.46373	30103	13.53627	6. 46373	30103	13.53627	00000	00000	59
2	59 44	0 16	76476	17609	23524	76476	17609	23524	00000	00000	58
3 4	59 36 59 28	$\begin{array}{c} 0 & 24 \\ 0 & 32 \end{array}$	94085 7. 06579	12494 9691	05915 12.93421	94085	12494 9691	05915	00000	00000	57
$\frac{4}{5}$	11 59 20	0 0 40	7. 16270	7918	$\frac{12.93421}{12.83730}$	7. 06579	7918	$\frac{12.93421}{12.83730}$	10.00000	10,00000	56 55
6	59 12	0 48	.24188	6694	75812	24188	6694	75812	00000	00000	54
7	59 4	0 56	30882	5800	69118	30882	5800	69118	00000	00000	53
8	58 56	1 4	36682	5115	63318	36682	5115	63318	00000	00000	52
9	58 48	1 12	41797	4576	58203	41797	4576	58203	00000	00000	51
10	$\begin{array}{c} 11 \ 58 \ 40 \\ 58 \ 32 \end{array}$	$\begin{bmatrix} 0 & 1 & 20 \\ 1 & 28 \end{bmatrix}$	7. 46373 50512	4139	12. 53627	7. 46373	4139	12.53627	10.00000	10.00000	50
$\frac{11}{12}$	58 32 58 24	1 36	54291	3779	49488 45709	50512 54291	3779 3476	49488 45709	00000	00000	49 48
13	58 16	1 44	57767	3218	42233	57767	3219	42233	00000	00000	47
14	58 8	1 52	60985	2997	39015	60986	2996	39014	00000	00000	46
15	11 58 0	0 2 0	7.63982	2802	12.36018	7.63982	2803	12.36018	10.00000	10.00000	45
16	57 52	2 8	66784	2633	33216	66785	2633	33215	00000	00000	44
17 18	$57 ext{ } 44 \\ 57 ext{ } 36$	$\begin{array}{c c} 2 & 16 \\ 2 & 24 \end{array}$	69417	2483	30583	69418	2482 2348	30582	00001	9. 99999	43
19	57 28	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	71900 74248	$\begin{vmatrix} 2348 \\ 2227 \end{vmatrix}$	$28100 \\ 25752$	71900 74248	2228	$28100 \\ 25752$	00001 00001	99999	42 41
20	$\frac{57 20}{11 57 20}$	$\frac{2 \ 32}{0 \ 2 \ 40}$	7. 76475	2119	12, 23525	7. 76476	2119	12. 23524	10.00001	9. 99999	40
21	57 12	2 48	78594	2021	21406	78595	2020	21405	00001	99999	39
22	57 4	2 56	80615	1930	19385	80615	1931	19385	00001	99999	38
$\begin{array}{c} 23 \\ 24 \end{array}$	56 56 56 48	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	82545	1848	17455	82546	1848	17454	00001	99999	37
$\frac{24}{25}$	11 56 40	$\frac{3}{0} \frac{12}{3} \frac{12}{20}$	84393	$\frac{1773}{1704}$	$\frac{15607}{12.13834}$	84394 7. 86167	$\frac{1773}{1704}$	$\frac{15606}{12.13833}$	00001	99999	36
$\frac{26}{26}$	56 32	3 28	7. 86166 87870	1639	12130	87871	1639	12129	$\begin{array}{c} 10.00001 \\ 00001 \end{array}$	9, 99999 99999	35 34
27	56 24	3 36	89509	1579	10491	89510	1579	10490	00001	99999	33
28	56 16	3 44	91088	1524	08912	91089	1524	08911	00001	99999	32
29	56 8	3 52	92612	1472	07388	92613	1473	07387	00002	99998	31
30 31	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 0 & 4 & 0 \\ 4 & 8 \end{bmatrix}$	7. 94084	1424	12.05916	7. 94086	1424	$12.05914 \\ 04490$	10.00002	9.99998	30
32	55 44	4 16	95508 96887	1379 1336	04492 03113	95510 96889	$1379 \\ 1336$	03111	$00002 \\ 00002$	99998 99998	29 28
33	55 36	4 24	98223	1297	01777	98225	1297	01775	00002	99998	27
34	55 28	4 32	99520	1259	00480	99522	1259	00478	00002	99998	26
35	11 55 20	0 4 40	8.00779	1223	11. 99221	8.00781	1223		10.00002	9.99998	25
36 37	$55 12 \\ 55 4$	4 48 4 56	02002 03192	1190 1158	97998	02004	1190	97996	00002	99998	24
38	$54 \ 56$	5 4	04350	1128	96808 95650	03194 04353	1159 1128	96806 95647	00003 00003	99997 99997	23 22
39	54 48	$5 1\hat{2}$	05478	1100	94522	05481	1100	94519	00003	99997	21
40	11 54 40	0 5 20	8.06578	1072	11.93422	8.06581	1072	11.93419	10.00003	9.99997	20
41	54 32	5 28	07650	1046	92350	07653	1047	92347	00003	99997	19
42	54 24 54 16	5 36 5 44	08696	1022	91304	08700	1022	91300	00003	99997	18
43 44	54 16 54 8	5 52	09718 10717	999	90282 89283	$09722 \\ 10720$	998 976	90278 89280	00003 00004	99997 99996	17 16
45	$\frac{51}{11}$ $\frac{54}{54}$ 0	0 6 0	8. 11693	954	11.88307	8. 11696	955		10.00004	9.99996	$\frac{10}{15}$
46	53 52	6 8	12647	934	87353	12651	934	87349	00004	99996	14
47	53 44	6 16	13581	914	86419	13585	915	86415	00004	99996	13
48	53 36	6 24	14495	896	85505	14500	895	85500	00004	99996	12
$\frac{49}{50}$	$\frac{53}{11} \frac{28}{53} \frac{20}{20}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	15391 8. 16268	877	$\frac{84609}{11.83732}$	15395 8. 16273	878 860	$\frac{84605}{11.83727}$	$\frac{00004}{10.00005}$	99996 9.99995	$\frac{11}{10}$
51	53 12	6 48	17128	843	82872	17133	843	82867	00005	99995	9
52	53 4	6 56	17971	827	82029	17976	828	82024	00005	99995	8
53	52 56	7 4	18798	812	81202	18804	812	81196	00005	99995	7
54	52 48	7 12	19610 -	797	80390	19616	797	80384	00005	99995	6
55 56	$\begin{array}{cccc} 11 & 52 & 40 \\ & 52 & 32 \end{array}$	0 7 20 7 28	8. 20407 · 21189	782 769	11. 79593 78811	8. 20413 21195	782 769	11. 79587 78805	10.00006 00006	9. 99994 99994	5 4
57	52 24	7 36	$\frac{21189}{21958}$	755	78042	$21195 \\ 21964$	756	78036	00006	99994	3
58	52 16	7 44	22713	743	77287	22720	742	77280	00006	99994	2
59	52 8	7 52	23456	730	76544	23462	730	76538	00006	99994	1
60	52 0	8 0	24186	717	75814	24192	718	75808	00007	99993	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff. 1'.	Secant.	Cotangent.	Diff. 1'.	Tangent.	Cosecant.	Sine.	M.
900		П. Л.			2004111	Journa Cont.			300000000		890
900											280

Log. Sines, Tangents, and Secants.

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M.	Hour A. M.	Hour P. M.	Sine.	Diff. 1'.	Cosecant.	Tangent.	Diff. 1'.	Cotangent.	Secant.	Cosine.	M.
	11 50 0	0 0 0	0 04100	717	11 75014	8 94109	719	11 75909	10.00007	9, 99993	60
0	11 52 0	0 8 0	8. 24186	717	$11.75814 \\ 75097$	8. 24192 24910	718 706	11. 75808 75090	00007	99993	59
$\frac{1}{2}$	51 52 51 44	8 8 8 16	$24903 \\ 25609$	706 i 695	74391	25616	696	74384	00007	99993	58
3	51 36	8 24	26304	684	73696	26312	684	73688	00007	99993	57
4	51 28	8 32	26988	673	73012	26996	673	73004	00008	99992	56
5	11 51 20	0 8 40	8. 27661	663	11. 72339	8. 27669	663	11.72331	10,00008	9.99992	55
.6	51 12	8 48	28324	653	71676	28332	654	71668	00008	99992	54
7	51 4	8 56	28977	644	71023	28986	643	71014	00008	99992	53
8	50 56	9 4	29621	634	70379	29629	634	70371	00008	99992	52
9	50 48	9 12	30255	624	69745	30263	625	69737	00009	99991	51
10	11 50 40	0 9 20	8. 30879	616	11.69121	8. 30888	617	11.69112	10.00009	9.99991	50
11	50 32	9 28	31495	608	68505	31505	607	68495	00009	99991	49
12	50 24	9 36	32103	599	67897	32112	599	67888	00010	99990	48
13	50 16	$944 \\ 952$	$\frac{32702}{33292}$	590 583	67298 66708	$32711 \\ 33302$	591 584	67289 66698	00010 00010	99990 99990	47 46
14	$\frac{50}{11} \frac{8}{50}$				$\frac{66708}{11.66125}$	8. 33886	575	11.66114	10.00010	9.99990	45
15 16	11 50 0 49 52	0 10 0 10 8	8. 33875 34450	575 568	65550	34461	568	65539	00011	99989	44
17	49 44	10 16	35018	560	64982	35029	561	64971	00011	99989	43
18	49 36	10 24	35578	553	64422	35590	553	64410	00011	99989	42
19	49 28	10 32	36131	547	63869	36143	546	63857	00011	99989	41
20	11 49 20	0 10 40	8.36678	539	11.63322	8. 36689	540	11.63311	10.00012	9.99988	40
21	49 12	10 48	37217	533	62783	37229	533	62771	00012	99988	39
22	49 4	10 56	37750	526	62250	37762	527	62238	00012	99988	38
23	48 56	11 4	38276	520	61724	38289	520	61711	00013	99987	37
24	48 48	11 12	38796	514	61204	38809	514	61191	00013	99987	36
25	11 48 40	0 11 20	8.39310	508	11.60690	8. 39323	509	11.60677	10.00013	9. 99987	35
26	48 32	11 28	39818	502	60182	39832	502	60168	00014	99986	34
27	48 24	11 36	40320	496	59680 59184	40334 40830	496 491	59666 59170	00014 00014	99986 99986	33 32
28 29	48 16 48 8	11 44 11 52	40816 41307	491 485	58693	41321	486	58679	00014	99985	31
30	11 48 0	$\frac{11}{0}\frac{32}{12}$	8.41792	480	11. 58208	8, 41807	480	11.58193	10,00015	9.99985	30
31	47 52	12 8	42272	474	57728	42287	475	57713	00015	99985	29
32	47 44	12 16	42746	470	57254	42762	470	57238	00016	99984	28
33	47 36	12 24	43216	464	56784	43232	464	56768	00016	99984	27
34	47 28	12 32	43680	459	56320	43696	460	56304	00016	99984	26
35	11 47 20	0 12 40	8, 44139	455	11.55861	8. 44156	455	11.55844	10.00017	9.99983	25
36	47 12	12 48	44594	450	55406	44611	450	55389	00017	99983	24
37	47 4	12 56	45044	445	54956	45061	446	54939	00017	99983	23
38	46 56	13 4	45489	441	54511	45507	441	54493	00018	99982	22
39	46 48	13 12	45930	436	54070	45948	437	54052	00018	99982	21
40	11 46 40	0 13 20	8.46366	433	11.53634	8. 46385	432	11. 53615	10.00018	9.99982	20
41	46 32	13 28 13 36	$46799 \\ 47226$	427 424	53201	46817	428 424	53183	00019	99981 99981	19
42 43	46 24 46 16	13 44	47650	419	52774 52350	47245 47669	420	52755 52331	00019	99981	18 17
44	46 8	13 52	48069	416	51931	48089	416	51911	00019	99980	16
45	$\frac{10}{11} \frac{0}{46} \frac{0}{0}$	0 14 0	8, 48485	411	11. 51515	8. 48505	412	11.51495	10.00020	9.99980	15
46	45 52	14 8	48896	408	51104	48917	408	51083	00021	99979	14
47	45 44	14 16	49304	404	50696	49325	404	50675	00021	99979	13
48	45 36	14 24	49708	400	50292	49729	401	50271	00021	99979	12
49	45 28	14 32	- 50108	396	% 49892	50130	397	49870	00022	99978	11
50	11 45 20	0 14 40	8.50504	393	11.49496	8.50527	393	11.49473	10.00022	9.99978	10
51	45 12	14 48	50897	390	49103	50920	390	49080		99977	9
52	45 4	14 56	51287	386	48713	51310	386	48690	00023	99977	8
53 54	44 56	15 4 15 12	51673	382	48327	51696	383	48304	00023	99977	7
	44 48		52055	379	47945	52079	380	47921	00024	99976	6
55 56	$\begin{array}{c} 11 \ 44 \ 40 \\ 44 \ 32 \end{array}$	0 15 20 15 28	8. 52434 52810	376	11.47566	8.52459	376	11. 47541 47165	10. 00024	9. 99976 99975	5 4
57	44 24	15 36	53183	$\begin{vmatrix} 373 \\ 369 \end{vmatrix}$	47190 46817	52835 53208	373 370	46792	00025 00025	99975	3
58	44 16	15 44	53552	367	46448	53578	367	46422	00026	99974	2
59	44 8	15 52	53919	363	46081	53945	363	46055	00026	99974	1
60	44 0	16 0	54282	360	45718	54308	361	45692	00026	99974	Ô
M.	Hour P. M.	Hour A. M.	Cosine.	Diff. 1'.	Secant.	Cotangent.	Diff. 1'.	Tangent.	Cosecant.	Sine.	M.
910	•			I .			1	1			880
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TABLE 44.

Log. Sines, Tangents, and Secants.

Log. Sines, Tangents, and Secants.

Diff 1' Cosecant Tangent Diff 1' Cotangent Secant

M.	Hour A. M.	Hour P. M.	Sine.	Diff. 1'.	Cosecant.	Tangent.	Diff. 1'.	Cotangent.	Secant.	Cosine.	М.
0	11 36 0	0 24 0	8. 71880	240	11. 28120	8. 71940	241	11. 28060	10.00060	9. 99940	60
ĭ	35 52	24 8	72120	239	27880	72181	239	27819	00060	99940	59
2	35 44	24 16	72359	238	27641	72420	239	27580	00061	99939	58
3	35 36	24 24	72597	237	27403	72659	237	27341	00062	99938	57
4	35 28	24 32	72834	235	27166	72896	236	27104	00062	99938	56
5	11 35 20	0 24 40	8, 73069	234	11. 26931	8. 73132	234	11.26868	10.00063	9.99937	55
6	35 12	24 48	73303	232	26697	73366	234	26634	00064	99936	54
7	35 4	24 56	73535	232	26465	73600	232	26400	00064	99936	53
8	34 56	25 4	73767	230	26233	73832	231	26168	00065	99935	52
9	34 48	25 12	73997	229	26003	74063	229	25937	00066	99934	51
10	11 34 40	0 25 20	8.74226	228	11.25774	8.74292	229	11.25708	10.00066	9.99934	50
11	34 32	25 28	74454	226	25546	74521	227	25479	00067	99933	49
12	34 24	25 36	74680	226	25320	74748	226	25252	00068	99932	48
13	34 16	25 44	74906	224	25094	74974	225	25026	00068	99932	47
14	34 8	25 52	75130	223	24870	75199	224	24801	00069	99931	46
15	11 34 0	0 26 0	8.75353	222	11.24647	8.75423	222	11.24577	10.00070	9.99930	45
16	$33 \ 52$	26 8	75575	220	24425	75645	222	24355	00071	99929	44
17	33 44	26 16	75795	220	24205	75867	220	24133	00071	99929	43
18	33 36	26 24	76015	219	23985	76087	219	23913	00072	99928	42
19	33 28	26 32	76234	217	23766	76306	219	23694	00073	99927	41
20	11 33 20	0 26 40	8.76451	216	11. 23549	8. 76525	217	11. 23475	10.00074	9. 99926	40
21	33 12	26 48	76667	216	23333	76742	216	23258	00074	99926	39
22	33 4	26 56	76883	214	23117	76958	215	23042	00075	99925	38
23	32 56	27 4	77097	213	22903	77173	214	22827	00076	99924	37
24	32 48	27 12	77310	212	22690	77387	213	22613	00077	99923	36
25	11 32 40	0 27 20	8.77522	211	11. 22478	8.77600	211	11. 22400	10.00077	9. 99923	35
26	$32 \ 32$	27 28	77733	210	22267	77811	211	22189	00078	99922	34
27	32 24	27 36	77943	209	22057	78022	210	21978	00079	99921	33
28	32 16	27 44	78152	208	21848	78232	209	21768	00080	99920	32
29	32 8	27 52	78360	208	21640	78441	208	21559	00080	99920	31
30	11 32 0	0 28 0	8. 78568	206	11. 21432	8. 78649	206	11. 21351	10.00081	9. 99919	30
31	31 52	28 8	78774	205	21226	78855	206	21145	00082	99918	29
32	31 44	28 16	78979	204	21021	79061	205	20939	00083	99917	28 27
33	31 36	28 24 28 32	79183	203	$20817 \\ 20614$	$79266 \\ 79470$	204 203	20734 20530	00083 00084	99917 99916	26
34	31 28		79386	202							25
35	11 31 20	0 28 40	8. 79588	201	11,20412	8.79673		11. 20327	10.00085	9. 99915 99914	$\frac{25}{24}$
36	31 12	28 48	79789	201	20211	79875	201	20125	00086	99914	23
37 38	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	28 56 29 4	79990 80189	199 199	20010 19811	80076 80277	201 199	19924 19723	00087 00087	99913	$\frac{23}{22}$
39	30 48	29 12	80388	197	19612	80476	198	19524	00088	99912	21
	11 30 40	0 29 20	8. 80585	$\frac{137}{197}$	11. 19415	8.80674	198	11. 19326	10.00089	9. 99911	20
40 41	30 32	29 28	80782	196	19218	80872	196	19128	00090	99910	19
42	30 32	29 36	80978	195	19022	81068	196	18932	00091	99909	18
43	30 16	29 44	81173	194	18827	81264	195	18736	00091	99909	17
44	30 8	29 52	81367	193	18633	81459	194	18541	00092	99908	16
45	11 30 0	0 30 0	8, 81560	192	11. 18440	8, 81653	193	11. 18347	10.00093	9, 99907	15
46	29 52	30 8	81752	192	18248	81846	192	18154	00094	99906	14
47	29 44	30 16	81944	190	18056	82038	192	17962	00095	99905	13
48	29 36	30 24	82134	190	17866	82230	190	17770	00096	99904	12
49	29 28	30 32	82324	189	17676	82420	190	17580	00096	99904	11
50	11 29 20	0 30 40	8.82513	188	11.17487	8.82610	189	11.17390	10.00097	9.99903	10
51	29 12	30 48	82701	187	17299	82799	188	17201	00098	99902	9
52	29 4	30 56	82888	187	17112	82987	188	17013	00099	99901	
53	28 56	31 4	83075	186	16925	83175	186	16825	00100	99900	8 7
54	28 48	31 12	83261	185	16739	83361	186	16639	00101	99899	6
55	11 28 40	0 31 20	8.83446	184	11.16554	8.83547	185	11.16453	10.00102	9.99898	3
56	28 32	31 28	83630	183	16370	83732	184	16268	00102	99898	4
57	28 24	31 36	83813	183	16187	83916	184	16084	00103	99897	3 2
58	28 16	31 44	83996	181	16004	84100	182	15900	00104	99896	2
59	28 8	31 52	84177	181	15823	84282	182	15718	00105	99895	1
60	28 0	32 0	84358	181	15642	84464	182	15536	00106	99894	0
-											
M.	Hour P. M.	Hour A. M.	Cosine.	Diff. 1'.	Secant.	Cotangent.	Diff. 1'.	Tangent.	Cosecant.	Sine	М.
930		,									860
1											

Page	WW AT
Dama	7761
IARG	4 4 10 1

M.

20 16

Hour P. M. Hour A. M.

20 56

38 56

8.92561

Cosine.

8, 93301

Diff. 1'.

TABLE 44.

Log. Sines, Tangents, and Secants.

Secant.

11.06699

8.92716

Cotangent. Diff. 1'.

8.93462

11.07439

11.07284

Tangent.

11.06538

Cosecant.

10.00160

10.00155

M.

 $\overline{5}$

9.99845

Sine.

9,99840

						[Page 77	7				
				Log.	Sines, Tar	ngents, and	d Sec	ants.				
50			A		A	В		В	C			1740
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	11 20 00	0 40 00	8.94030	0	11. 05970	8. 94195	0	$11.05805 \\ 05660$	$10.\ 00166\\00167$	0	9. 99834 99833	60 59
$\frac{1}{2}$	19 52 19 44	40 08 40 16	94174 94317	2 4	05826 05683	94340 94485	$egin{array}{c} 2 \\ 4 \end{array}$	05515	00168	0	99832	58
3 4	19 36 19 28	40 24 40 32	94461 94603	7 9	05539 05397	94630 94773	7 9	$05370 \ 05227$	00169 00170	0	99831 99830	57 56
$\frac{4}{5}$	11 19 20	0 40 40	8. 94746	11	11.05254	8.94917	11	11.05083	10.00171	0	9.99829	55
6	19 12 19 04	40 48 40 56	94887 95029	13 15	$05113 \\ 04971$	95060 95202	13 15	$04940 \\ 04798$	$00172 \\ 00173$	0	99828 99827	54 53
8	18 56	41 04	95170	18	04830	95344	18	04656	00175	0	99825	52
$\frac{9}{10}$	18 48 11 18 40	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	95310 8, 95450	$\frac{20}{22}$	$04690 \\ 11.04550$	95486 8, 95627	$\frac{20}{22}$	04514 11.04373	$\frac{00176}{10.00177}$	$\frac{0}{0}$	$\frac{99824}{9.99823}$	$\frac{51}{50}$
11	18 32	41 28	95589	24	04411	95767	24	04233	00178	0	99822	49
12 13	18 24 18 16	41 36 41 44	95728 95867	26 29	$04272 \\ 04133$	95908 96 04 7	27 29	04092 03953	00179 00180	0	99821 99820	$\begin{array}{c} 48 \\ 47 \end{array}$
14	18 08	41 52	96005	31	03995	96187	31	03813	00181	0	99819	46
15 16	11 18 00 17 52	0 42 00 42 08	8. 96143 96280	33 35	$\begin{array}{c} 11.03857 \\ 03720 \end{array}$	8. 96325 96464	33 35	11. 03675 03536	10. 00183 00184	0	9. 99817 99816	45 44
17	17 44	42 16	96417	37	03583	96602	38 40	03398 03261	00185 00186	0	99815 99814	43 42
18 19	17 36 17 28	$\begin{array}{cccc} 42 & 24 \\ 42 & 32 \end{array}$	96553 96689	39 42	03447 03311	96739 96877	42	03123	00187	0	99813	41
20	11 17 20	0 42 40	8. 96825	44	11. 03175	8.97013	44 46	11. 02987 02850	10.00188 00190	0	9. 99812 99810	40 39
21 22	17 12 17 04	42 48 42 56	96960 97095	46	03040 02905	97150 97285	49	02830	00191	0	99809	38
23	16 56	43 04 43 12	97229 97363	50 53	02771 02637	97421 97556	51 53	$02579 \\ 02444$	00192 00193	0	99808 99807	37 36
$\frac{24}{25}$	16 48 11 16 40	0 43 20	8. 97496	55	11. 02504	8.97691	55	11. 02309	10.00194	1	9.99806	35
26	16 32	43 28	97629 97762	57 59	02371 02238	97825 97959	58 60	02175 02041	00196 00197	1 1	99804 99803	34 33
27 28	16 24 16 16	43 36 43 44	97894	61	02106	98092	62	01908	00198	1	99802	32
29	16 08 11 16 00	43 52 0 44 00	98026 8. 98157	$\frac{64}{66}$	01974 11.01843	$\frac{98225}{8.98358}$	$\frac{64}{66}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	00199 10, 00200	$\frac{1}{1}$	$\frac{99801}{9.99800}$	$\frac{31}{30}$
30 31	15 52	44 08	98288	68	01712	98490	69	01510	00202	1	99798	29
32 33	15 44 15 36	44 16 44 24	98419 98549	70 72	01581 01451	98622 98753	71 73	$01378 \\ 01247$	00203 00204	1 1	99797 99796	28 27
34	15 28	44 32	98679	75	01321	98884	75	01116	00205	1	99795	26
35 36	11 15 20 15 12	0 44 40 44 48	8. 98808 98937	77 79	$\begin{array}{c} 11.01192 \\ 01063 \end{array}$	8. 99015 99145	77 80	11. 00985 00855	10. 00207 00208	1	$9.99793 \\ 99792$	25 24
37	15 04	44 56	99066	81	00934	99275	82	00725	00209	1	99791	23
38 39	14 56 14 48	45 04 45 12	99194 99322	83 86	00806 00678	99405 99534	84 86	00595 00466	$00210 \\ 00212$	1 1	99790 99788	22 21
40	11 14 40	0 45 20	8. 99450	88	11.00550	8.99662	89	11.00338	10.00213	1	9.99787	20
41 42	14 32 14 24	45 28 45 36	99577 99704	90 92	00423	99791 99919	91 93	00209 00081	$00214 \\ 00215$	1 1	99786 99785	19 18
43	14 16	45 44 45 52	99830	94 96	00170 00044	$9.00046 \\ 00174$	95 97	10. 99954 99826	$00217 \\ 00218$	1 1	99783 99782	17 16
44	14 08 11 14 00	· 45 52 0 46 00	99956 9.00082	99	10. 99918	9.00301	$\frac{37}{100}$	10.99699	10. 00219	1	9. 99781	15
46	13 52	46 08 46 16	$00207 \\ 00332$	101 103	99793 99668	$00427 \\ 00553$	102 104	99573 99447	$00220 \\ 00222$	1 1	99780 99778	14 13
47 48	13 44 13 36	46 24	00456	105	99544	00679	106	99321	00223	1	99777	12
49	$\frac{13 \ 28}{11 \ 13 \ 20}$	46 32 0 46 40	00581 9.00704	$\frac{107}{110}$	99419	9,00930	$\frac{108}{111}$	99195	00224 $10,00225$	$\frac{1}{1}$	$\frac{99776}{9,99775}$	$\frac{11}{10}$
50 51	13 12	46 48	00828	112	99172	01055	113	98945	00227	1	99773	9
52 53	$13 04 \\ 12 56$	46 56 47 04	00951 01074	114 116	99049 98926	$01179 \\ 01303$	115 117	98821 98697	00228. 00229	1	99772 99771	8 7
54	12 48	47 12	01196	118	98804	01427	120	98573	00231	1	99769	6
55 56	$\begin{array}{cccc} 11 & 12 & 40 \\ & 12 & 32 \end{array}$	0 47 20 47 28	9. 01318 01440	$\begin{array}{c c} 121 \\ 123 \end{array}$	10. 98682 98560	$9.01550 \\ 01673$	$\begin{array}{ c c }\hline 122\\124\\\end{array}$	10. 98450 98327	$\begin{array}{c} 10.00232 \\ 00233 \end{array}$	1 1	99768 99767	5 4
57	12 24	47 36	01561	125	98439	01796	126	98204	00235	1	99765	3
58 59	12 16 12 08	47 44 47 52	01682 01803	127 129	98318 98197	$01918 \\ 02040$	128 131	98082 97960	00236 00237	1 1	99764	$\begin{array}{c c} 2 \\ 1 \end{array}$
60	12 00	48 00	01923	132	98077	02162	133	97838	00239	1	99761	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.		Cosecant.	Diff.	Sine.	M.
950			A		Α .	В		В	С		С	840

Seconds of time	1 •	2 8	3 "	4"	5 =	6.	7 -
Prop. parts of cols. $\left\{egin{matrix} A \\ B \\ C \end{array}\right\}$	16	33	49	66	82	99	115
	17	33	50	66	83	100	116
	0	0	0	1	1	1	1

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Log. Sines, Tangents, and Secants.

60			A		A	В		В	c		C	1780
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
0	11 12 00	0 48 00	9. 01923	0	10. 98077	9. 02162			10.00239	0	9. 99761	60
$\frac{1}{2}$	$\begin{array}{c c} & 11 & 52 \\ & 11 & 44 \end{array}$	$\begin{array}{c} 48 \ 08 \\ 48 \ 16 \end{array}$	$02043 \\ 02163$	$\begin{vmatrix} 2\\4 \end{vmatrix}$	97957 97837	$02283 \\ 02404$	$\frac{2}{4}$	97717 97596	$00240 \\ 00241$	0	99760 99759	59 58
3	11 36	48 24	02103	6	97717	$02404 \\ 02525$	6	97475	00241	0	99757	57
4	11 28	48 32	02402	~ 7	97598	02645	8	97355	00244	Õ	99756	56
5	11 11 20	0 48 40	9.02520	9	10.97480	9.02766		10.97234	10.00245	0	9. 99755	55
6	11 12	48 48	02639	11	97361	02885	11	97115	00247	0	99753	54
7 8	$11 04 \\ 10 56$	48 56 49 04	$02757 \\ 02874$	13 15	97243 97126	$03005 \\ 03124$	13 15	96995 96876	00248 00249	0	99752 99751	53 52
9	10 48	49 12	02992	17	97008	03242	17	96758	00251	Ö	99749	51
10	11 10 40	0 49 20	9. 03109	19	10.96891	9.03361	19	10. 96639	10.00252	0	9. 99748	50
11	10 32	49 28	03226	$\frac{20}{22}$	96774	03479	21	96521	00253	0	99747	49
12 13	$10 24 \\ 10 16$	49 36 49 44	03342 03458	24	96658 96542	$03597 \\ 03714$	$\frac{23}{24}$	96403 96286	$00255 \\ 00256$	0	99745 99744	48 47
14	10 08	49 52	03574	26	96426	03832	26	96168	00258	ő	99742	46
15	11 10 00	0 50 00	9. 03690	28	10.96310	9.03948	28	10.96052	10.00259	0	9. 99741	45
16	9 52	50 08	03805	30	96195	04065	30	95935	00260	0	99740	44
17 18	9 44 9 36	50 16 50 24	03920 04034	31 33	96080 95966	$04181 \\ 04297$	$\frac{32}{34}$	95819 95703	$00262 \\ 00263$	0	99738 99737	43 42
19	9 28	50 32	04149	35	95851	04413	36	95587	00264	ő	99736	41
20	11 9 20	0 50 40	9.04262	37	10.95738	9.04528	38	10.95472	10.00266	0	9.99734	40
21	9 12	50 48	04376	39	95624	04643	39	95357	00267	1	99733	39
22 23	$904 \\ 856$	50 56 51 04	04490 04603	41 43	95510 95397	$04758 \\ 04873$	41 43	$95242 \\ 95127$	00269 00270	1 1	99731 99730	38 37
24	8 48	51 12	04715	44	95285	04987	45	95013	00270	i	99728	36
25	11 8 40	0 51 20	9.04828	46	10.95172	9.05101	47	10. 94899	10.00273	1	9.99727	35
26	8 32	51 28	04940	48	95060	05214	49	94786	00274	1	99726	34
27 28	8 24 8 16	51 36 51 44	$05052 \\ 05164$	$\begin{vmatrix} 50 \\ 52 \end{vmatrix}$	94948 94836	$05328 \\ 05441$	51 53	94672 94559	$00276 \\ 00277$	1 1	99724 99723	33 32
29	8 08	51 52	05104 05275	54	94725	05553	54	94447	00279	1	99721	31
30	11 8 00	0 52 00	9.05386	56	10. 94614	9.05666	56	10.94334	10.00280	1	9.99720	30
31	7 52	52 08	05497	57	94503	05778	58	94222	00282	1	99718	29
32 33	$\begin{array}{c} 7 & 44 \\ 7 & 36 \end{array}$	$52 16 \\ 52 24$	$05607 \\ 05717$	59 61	94393 94283	05890 06002	$\begin{vmatrix} 60 \\ 62 \end{vmatrix}$	94110 93998	$00283 \\ 00284$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	99717	28 27
34	7 28	52 32	05827	63	94173	06113	64	93887	00286	1	99716 99714	26
35	$\frac{11}{11} \frac{7}{7} \frac{20}{20}$	0 52 40	9.05937	65	10. 94063	9.06224	66	10. 93776	10.00287	1	9.99713	25
36	7 12	52 48	06046	67	93954	06335	68	93665	00289	1	99711	24
37	$\begin{array}{c} 7 \ 04 \\ 6 \ 56 \end{array}$	52 56 53 04	$06155 \\ 06264$	69 70	93845 93736	06445 06556	69	93555 93444	00290 00292	1 1	99710 99708	23 22
38 39	$\begin{array}{c} 6 \ 56 \\ 6 \ 48 \end{array}$	53 12	06372	72	93628	06666	73	93334	00292	1	99707	21
40	11 6 40	0 53 20	9.06481	74	10. 93519	9.06775	75	10. 93225	10.00295	1	9.99705	20
41	6 32	53 28	06589	76	93411	06885	77	93115	00296	1	99704	19
42	6 24	53 36	06696	78	93304	06994	79	93006	00298 00299	1	99702	18
43	$\begin{array}{c} 6 \ 16 \\ 6 \ 08 \end{array}$	53 44 53 52	06804 06911	80 81	93196 93089	$07103 \\ 07211$	81 83	92897 92789	00299	1 1	99701 99699	17 16
45	11 6 00	0 54 00	9.07018	83	10. 92982	9.07320	84	10. 92680	10.00302	1	9.99698	15
46	5 52	54 08	07124	85	92876	07428	86	92572	00304	1	99696	14
47	5 44	54 16	$07231 \\ 07337$	87	92769 92663	$07536 \\ 07643$	88	92464 92357	00305 00307	$\begin{array}{ c c } 1 \\ 1 \end{array}$	99695 99693	13 12
48 49	5 36 5 28	54 24 54 32	07337	91	92558	07643	92	92357	00307	1	99693	11
		0 54 40				9. 07858		10. 92142		1		10
51	5 12	54 48	07653	94	92347	07964	96	92036	00311	1	99689	9
52	5 04	54 56	07758	96	92242	08071	98	91929 91823	00313	1	99687	8
53 54	4 56 4 48	$55 04 \\ 55 12$	07863 07968	98	92137 92032	$08177 \\ 08283$	99 101	91823	00314 00316	1 1	99686	7 6
55	11 4 40	0 55 20	9. 08072	$\frac{100}{102}$	10. 91928	9. 08389	$\frac{101}{103}$	10. 91611	10.00317	1	9. 99683	5
56	4 32	55 28	08176	104	91824	08495	105	91505	00319	1	99681	4
57	4 24	55 36	08280	106	91720	08600	107	91400	$00320 \\ 00322$	1	99680	3
58 59	$\begin{array}{c} 4 \ 16 \\ 4 \ 08 \end{array}$	55 44 55 52	08383 08486	$\begin{array}{c} 107 \\ 109 \end{array}$	91617 91514	08705 08810	$\frac{109}{111}$	91295 91190	00323	1 1	99678 99677	2
60	4 00	56 00	08589	111	91411		113	91086	00325	î	99675	Õ
	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
960			A	1 - 2	A	В	1	В	C		C	830

Seconds of time	1 8	2 =	3.	4 8	5.	6 .	7 =
Prop. parts of cols. $\left\{egin{array}{c} A \\ B \\ C \end{array}\right\}$	14	28	42	56	69	83	97
	14	28	42	56	70	84	98
	0	0	1	1	1	1	1

m	A	DI	- 1	44

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Log. Sines, Tangents, and Secants.

Mour A.M. Hour A.M. Hour P.M. Sinc. Diff. Cosecant. Tangent. Diff. Cosingent. Diff. D	Log. Sines, Tangents, and Secants. 70 A B B C C 1720												
Name	70			A		A	В	1	В	С	1	C	
1 1 3 52 56 8 08902 2 91308 09919 2 90981 00326 0 99674 1 4 3 32 56 24 08897 5 91103 09227 5 90773 00330 0 99670 1 4 3 32 56 24 08897 5 91103 09227 5 90773 00330 0 99670 1 5 111 3 20 0 56 40 9.09101 8 10.90899 9 9.09434 8 10.9056 10.00333 0 99607 1 5 111 3 20 0 56 40 9.09101 1 8 10.90899 9 9.09434 8 10.9056 10.00333 0 99607 1 7 3 4 5 5 6 48 09202 10 90798 09577 10 9963 00336 0 99667 1 1 90360 00336 0 99667 1 1 90360 1 1 90360 1 1 90360 1 1 90360 00336 0 99667 1 1 90360 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 1 90360 1 90360 1 1 90	M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
2 3 44 55 16 087975 3 91205 09123 3 90877 00323 0 99672 4 3 28 56 32 08999 6 91001 09330 7 90670 00330 0 99660 4 3 13 2 56 48 09202 10 90798 09537 10 09464 8 10 09566 10 00333 0 99660 4 6 1 3 12 56 48 09202 10 90798 09537 10 09464 3 00334 0 99666 4 6 1 2 5 5 5 7 4 09405 13 90595 09742 13 90596 00337 0 99660 1 9 2 48 57 12 09506 1 4 90449 9049 90845 15 90155 00333 0 99661 1 1 1 2 2 5 5 2 5 7 2 0 90660 1 4 90449 1 90499 1 90450 1 90595 09742 1 1 1 2 2 2 2 4 5 7 7 2 0 90660 1 4 90449 1 90499 1 90451 5 1 1 1 2 2 2 2 4 5 7 7 2 0 90660 1 4 90499 1 90491 1 1 2 2 2 2 4 5 7 7 2 0 90660 1 4 90499 1 90491 1 1 1 2 2 2 2 4 5 7 7 2 0 90660 1 4 0 1 1 2 2 9 1 1 2 2 2 2 4 5 7 2 2 1 1 2 2 2 4 5 7 7 2 0 90670 1 9 90193 1 10150 20 89850 00334 0 99668 1 1 2 2 2 4 5 7 7 4 09405 1 9 90193 1 10150 20 89850 00344 0 99658 1 1 2 2 2 4 5 7 7 4 09907 2 1 9 9003 1 10150 20 89850 00344 0 99658 1 1 4 2 8 5 7 5 2 1 10006 22 88999 1 10333 2 88947 00347 0 99653 1 1 1 1 2 2 5 8 8 8 10205 26 88795 1 10555 26 89745 1 1 1 2 2 5 8 8 8 10205 2 6 88795 1 10555 2 6 89445 00350 0 99661 1 1 1 2 2 5 8 8 1 10202 2 88999 1 10756 2 9 8994 1 10353 2 88944 1 00352 1 9 99641 1 1 1 1 2 2 5 8 8 8 10205 2 6 88795 1 10556 2 8 89344 00355 1 9 99641 1 1 1 1 2 2 5 8 8 8 10205 2 6 88795 1 10556 2 8 89344 00355 1 9 99661 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0	11 4 0	0 56 0	9.08589	0	10. 91411	9.08914		10.91086				60
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60 56 0 4 0 14356 96 85644 14780 98 85220 00425 2 99575 M. Hour P.M. Hour A.M. Cosine. Diff. Secant. Cotangent. Diff. Tangent. Cosecant. Diff. Sine. 1			3 52								2		$\begin{array}{c c} 2 \\ 1 \end{array}$
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	М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff	Sine.	М.
										l			820
						**							02

Page	7801

 ${\bf Log.}$ Sines, Tangents, and Secants.

80			A		A	В		В	c		С	171°
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
0	10 56 0	1 4 0	9. 14356	0	10. 85644	9. 14780	0	10. 85220	10.00425	0	9. 99575	60
$\frac{1}{2}$	55 52 55 44	$\begin{array}{ccc} 4 & 8 \\ 4 & 16 \end{array}$	14445 1 14535	$\frac{1}{3}$	85555 85465	$14872 \\ 14963$	$\frac{1}{3}$	85128 85037	$00426 \\ 00428$	0	99574	59
3	55 36	4 24	14624	4	85376	15054	4	84946	00428	$\begin{vmatrix} 0 \\ 0 \end{vmatrix}$	99572 99570	58 57
4	55 28	4 32	14714	6	85286	15145	6	84855	00432	ŏ	99568	56
5	10 55 20	1 4 40	9.14803	7	10.85197	9. 15236	7	10.84764	10.00434	0	9.99566	55
6	55 12	4 48	14891	8	85109	15327	9	84673	00435	0	99565	54
7 8	55 4 54 56	$\begin{array}{cc} 4 & 56 \\ 5 & 4 \end{array}$	$14980 \\ 15069$	10 11	85020 84931	$15417 \\ 15508$	$\begin{array}{ c c }\hline 10 \\ 12 \end{array}$	84583 84492	00437 00439	0	99563 99561	$\begin{bmatrix} 53 \\ 52 \end{bmatrix}$
9	54 48	$5 \stackrel{1}{12}$	15157	13	84843	15598	13	84402	00433	ŏ	99559	51
10	10 54 40	1 5 20	9. 15245	14	10.84755	9.15688	14	10.84312	10.00443	0	9. 99557	50
11	54 32	5 28	15333	16	84667	15777	16	84223	00444	0	99556	49
12	54 24	5 36 5 44	15421	17	84579	15867	17	84133	00446	0	99554	48
13 14	$54 16 \\ 54 8$	$\begin{array}{c} 5 & 44 \\ 5 & 52 \end{array}$	15508 15596	$\begin{array}{c c} 18 \\ 20 \end{array}$	84492 84404	$15956 \\ 16046$	19 20	84044 83954	$00448 \\ 00450$	0	99552 99550	47 46
15	$\frac{51}{10} \frac{6}{54} \frac{6}{0}$	$\frac{0.02}{1.60}$	9. 15683	$\frac{20}{21}$	10. 84317	9. 16135	$\frac{20}{22}$		10.00452	0	9. 99548	45
16	53 52	6 8	15770	23	84230	16224	23	83776	00454	i	99546	44
17	53 44	6 16	15857	24	84143	16312	25	83688	00455	1	99545	43
18 19	53 36 53 28	$\begin{array}{c} 6 \ 24 \\ 6 \ 32 \end{array}$	$15944 \\ 16030$	$\begin{vmatrix} 25 \\ 27 \end{vmatrix}$	84056 83970	$16401 \\ 16489$	$\begin{array}{ c c } 26 \\ 27 \end{array}$	83599 83511	$00457 \\ 00459$	1 1	99543 99541	42 41
$\frac{19}{20}$	$\frac{53\ 28}{10\ 53\ 20}$	$\frac{6.32}{1.6.40}$	9, 16116	$\frac{27}{28}$	10. 83884	9. 16577	$\frac{27}{29}$	$\frac{83311}{10.83423}$	10.00461	$\frac{1}{1}$	$\frac{99541}{9.99539}$	41
21	53 12	6 48	16203	30	83797	16665	30	83335	00463	1	99537	39
22	53 4	6 56	16289	31	83711	16753	32	83247	00465	1	99535	38
23	52 56	7 4	16374	32	83626	16841	33	83159	00467	1	99533	37
$\frac{24}{25}$	$\frac{52\ 48}{10\ 52\ 40}$	$\frac{7 \ 12}{1 \ 7 \ 20}$	9. 16545	$\frac{34}{35}$	$\frac{83540}{10.83455}$	$\frac{16928}{9.17016}$	$\frac{35}{36}$	83072 10.82984	00468 10.00470	1	99532	$\frac{36}{35}$
26	$52\ 32$	7 28	16631	37	83369	17103	37	82897	00470	1 1	9.99530 99528	34
27	52 24	7 36	16716	38	83284	17190	39	82810	00474	î	99526	33
28	52 16	7 44	16801	39	83199	17277	40	82723	00476	1	99524	32
29	52 8	7 52	16886	41	83114	17363	42	82637	00478	1	99522	31
$\frac{30}{31}$	$ \begin{array}{cccc} 10 & 52 & 0 \\ 51 & 52 \end{array} $	$\begin{array}{ccc}1&8&0\\&8&8\end{array}$	$9.16970 \\ 17055$	42 44	10. 83030 82945	9. 17450 17536	43 45	10. 82550 82464	$10.00480 \\ 00482$	1 1	9. 99520 99518	30 29
32	51 44	8 16	17139	45	82861	17622	46	82378	00482	1	99517	28
33	5 1 36	8 24	17223	47	82777	17708	48	82292	00485	1	99515	27
34	51 28	8 32	17307	48	82693	17794	49	82206	00487	1	99513	26
35	10 51 20	1 8 40	9. 17391		10. 82609	9.17880	50	10. 82120	10.00489	1	9. 99511	25
36	51 12 51 4	8 48 8 56	17474 17558	$\begin{array}{ c c c }\hline 51 \\ 52 \end{array}$	$82526 \\ 82442$	17965 18051	52 53	82035 81949	$00491 \\ 00493$	1	99509 99507	24 23
38	50 56.	9 4	17641	54	82359	18136	55	81864	00495	1	99505	22
39	50 48	9 12	17724	55	82276	18221	56	81779	00497	1	99503	21
40	10 50 40	1 9 20	9. 17807		10. 82193	9. 18306	58	10.81694	10.00499	1	9.99501	20
41 42	50 32 50 24	9 28 9 36	17890 17973	58 59	82110 82027	18391 18475	59 61	81609 81525	00501 00503	1 1	99499 99497	19 18
43	50 16	9 44	18055	61	81945	18560	62	81440	00505	1	99495	17
44	50 8	9 52	18137	62	81863	18644	63	81356	00506	ī	99494	16
45	10 50 0	1.10 0	9. 18220	63	10. 81780	9. 18728	65	10.81272	10.00508	1	9.99492	15
46 47	49 52 49 44	10 8 10 16	18302 18383	65	81698	18812 18896	66	81188 81104	00510	1 1	99490	14
48	49 44 49 36	10 16	18383	68	81617 81535	18979	69	81104	00512	2	99488 99486	13 12
49	49 28	10 32	18547	69	81453	19063	71	80937	00516	2	99484	11
50		1 10 40			10.81372			10.80854		2	9.99482	10
51	49 12	10 48	18709	72	81291	19229	74	80771	00520	2	99480	9.
52 53	$\begin{array}{ccc} 49 & 4 \\ 48 & 56 \end{array}$	$10 56 \\ 11 4$	$18790 \\ 18871$	73 75	81210 81129	19312 19395	75 76	80688 80605	$00522 \\ 00524$	$\frac{2}{2}$	99478 99476	8 7
54	48 48	11 12	18952	76	81048	19478	78	80522	00524	2	99474	6
55	10 48 40	1 11 20	9. 19033	78	10.80967	9. 19561	79	10.80439	10.00528	2	9. 99472	5
56	48 32	11 28	19113	79	80887	19643	81	80357	00530	2	99470	4
57 58	48 24 48 16	11 36 11 44	$19193 \\ 19273$	80	80807 80727	19725 19807	82 84	80275 80193	00532 00534	$\begin{vmatrix} 2\\2 \end{vmatrix}$	99468 99466	3 2
59	48 10	11 52	19353	83	80647	19889	85	80111	00534	2	99464	1
60	48 0	12 0	19433	85	80567	19971	87	80029	00538	2	99462	Ō
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
980			A		A	В		В	C		C	810

Seconds of time	1.	24	3*	4:	5"	6ª	7*
Prop. parts of cols. $\left\{egin{matrix} A \\ B \\ C \end{array}\right\}$	11	21	32	42	53	63	74
	11	22	32	43	54	65	76
	0	0	1	1	1	1	2

				Log.	Sines, Ta	ngents, and	l Sec	ants.				
90			A		A	В	,	В	C	,	C	1700
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	10 48 0	1 12 0	9. 19433	0	10.80567	9. 19971	0	10. 80029	10. 00538	0	9. 99462	60
$\frac{1}{2}$	47 52 47 44	$egin{array}{cccccccccccccccccccccccccccccccccccc$	19513 19592	$\begin{vmatrix} 1 \\ 3 \end{vmatrix}$	80487 80408	$20053 \\ 20134$	$\begin{array}{c c} 1 \\ 3 \end{array}$	79947 79865	$00540 \\ 00542$	0	99460 99458	59 58
3	47 36	12 24	19672	4	80328	20216	4	79784	00544	ŏ	99456	57
4	47 28	12 32	19751	5	80249	20297	5	79703	00546	0	99454	56
5 6	$10 \ 47 \ 20 \ 47 \ 12$	1 12 40 12 48	9. 19830 19909	6 8	10. 80170 80091	9. 20378 20459	$\begin{vmatrix} 6 \\ 8 \end{vmatrix}$	10. 79622 79541	10. 00548 00550	0	9.99452 99450	55 54
7	47 4	12 56	19988	9	80012	20540	9	79460	00552	ő	99448	53
8	46 56	13 4	20067	10	79933	20621	10	79379	00554	0	99446	52
$\frac{9}{10}$	46 48 10 46 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{20145}{9,20223}$	$\frac{11}{13}$	$\frac{79855}{10.79777}$	$\frac{20701}{9,20782}$	$\frac{12}{13}$. 79299 10. 79218	00556 10.00558	$\frac{0}{0}$	$\frac{99444}{9.99442}$	$\frac{51}{50}$
11	46 32	13 28	20302	14	79698	20862	14	79138	00560	ŏ	99440	49
12	46 24	13 36	20380	15	79620	20942	16	79058	00562	0	99438	48
13 14	46 16 46 8	$13 \ 44 \ 13 \ 52$	$20458 \\ 20535$	$\begin{array}{ c c }\hline 16\\18\\ \end{array}$	79542 79465	$21022 \\ 21102$	17 18	78978 78898	$00564 \\ 00566$	0	99436 99434	47 46
15	10 46 0	1 14 0	9. 20613	19	10. 79387	9. 21182	19	10. 78818	10.00568	1	9.99432	45
16	45 52	14 8	20691	20	79309	21261	21	78739	00571	1	99429	44
17 18	45 44 45 36	$14\ 16\ 14\ 24$	$20768 \\ 20845$	$\begin{vmatrix} 21 \\ 23 \end{vmatrix}$	79232 79155	$21341 \\ 21420$	$\begin{vmatrix} 22 \\ 23 \end{vmatrix}$	78659 78580	00573 00575	$\begin{array}{c c} 1 \\ 1 \end{array}$	99427 99425	43 42
19	45 28	14 32	20922	24	79078	21499	25	78501	00577	1	99423	41
20	10 45 20	. 1 14 40	9. 20999	25	10. 79001	9. 21578	26	10. 78422	10.00579	1	9. 99421	40
$\begin{array}{c} 21 \\ 22 \end{array}$	$\begin{array}{ccc} 45 & 12 \\ 45 & 4 \end{array}$	14 48 14 56	$21076 \\ 21153$	$\frac{26}{28}$	78924 78847	$21657 \\ 21736$	$\begin{array}{c} 27 \\ 28 \end{array}$	78343 78264	00581 00583	1	99419 99417	39 38
23	44 56	15 4	21229	29	78771	21814	30	78186	00585	î	99415	37
24	44 48	15 12	21306	30	78694	21893	31	78107	00587	1	99413	36
25 26	$\begin{array}{cccc} 10 & 44 & 40 \\ & 44 & 32 \end{array}$	1 15 20 15 28	$9.21382 \\ 21458$	31 33	10. 78618 78542	$\begin{array}{c} 9.21971 \\ 22049 \end{array}$	$\frac{32}{34}$	10. 78029 77951	$10.00589 \\ 00591$	1	9. 99411 99409	35 34
27	44 24	15 36	21534	34	78466	22127	35	77873	00593	i	99407	33
28	44 16	15 44	21610	35	78390	22205	36	77795	00596	1	99404	32
29 30	$\begin{array}{c cccc} 44 & 8 \\ \hline 10 & 44 & 0 \\ \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{21685}{9.21761}$	$\frac{37}{38}$	78315 10. 78239	$\frac{22283}{9.22361}$	$\frac{38}{39}$	77717 10. 77639	00598 10. 00600	$\frac{1}{1}$	$\frac{99402}{9.99400}$	31
31	43 52	16 8	21836	39	78164	22438	40	77562	00602	i	99398	29
32	43 44	16 16	21912	40	78088	22516	41	77484	00604	1	99396	28
33 34	43 36 43 28	16 24 16 32	$21987 \\ 22062$	42 43	78013 77938	22593 22670	43 44	77407 77330	00606 00608	1 1	99394 99392	$\frac{27}{26}$
35	10 43 20	1 16 40	9. 22137	44	10.77863	9. 22747	45	10.77253	10.00610	1	9.99390	25
36	43 12	16 48	22211	45	77789	22824	47	77176	00612	1	99388	24
37 38	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cc} 16 & 56 \\ 17 & 4 \end{array}$	$22286 \\ 22361$	47	77714 77639	$22901 \\ 22977$	48 49	77099 7 7023	00615 00617	1	99385 99383	$\frac{23}{22}$
39	42 48	17 12	22435	49	77565	23054	50	76946	00619	ĩ	99381	21
40	$\begin{array}{cccc} 10 & 42 & 40 \\ & 42 & 32 \end{array}$	1 17 20	9. 22509	50	10. 77491	9. 23130	52	10.76870	10.00621	1	9.99379	20
41 42	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	17 28 17 36	$22583 \\ 22657$	52 53	77417 77343	23206 23283	53 54	$76794 \\ 76717$	$00623 \\ 00625$	1	99377 99375	19 18
43	42 16	17 44	22731	54	77269	23359	56	76641	00628	2	99372	17
44	42 8	$\frac{17 \ 52}{1 \ 19 \ 0}$	22805	55	77195	23435	57	76565	00630	2	99370	16
45 46	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 18 0 18 8	$9.22878 \\ 22952$	57 58	$10,77122 \\ 77048$	$9.23510 \\ 23586$	58 60	$10.76490 \\ 76414$	10. 00632 00634	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	9. 99368 99366	15 14
47	41 44	18 16	23025	59	76975	23661	61	76339	00636	2	99364	13
48 49	41 36 41 28	$ \begin{array}{c c} 18 & 24 \\ 18 & 32 \end{array} $	23098 23171	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	76902 76829	$23737 \\ 23812$	62 63	$76263 \\ 76188$	00638 00641	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	99362 99359	12
-	10 41 20	1 18 40	9. 23244	$\frac{62}{63}$	10.76756	9. 23887	$\frac{65}{65}$	10.76113	10.00643	$\frac{2}{2}$	9. 99357	$\frac{11}{10}$
51	41 12	18 48	23317	64	76683	23962	66	76038	00645	2	99355	9
52 53	41 4 40·56	$\begin{array}{ccc} 18 & 56 \\ 19 & 4 \end{array}$	$23390 \\ 23462$	65	76610 76538	24037 24112	67 69	75963 75888	$00647 \\ 00649$	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	99353	8 7
54	40 48	19 12	23535	68	76465	24112	70	75814	00652	2	99351 99348	6
55	10 40 40	1 19 20	9. 23607	69	10.76393	9. 24261	71	10.75739	10.00654	2	9. 99346	5
56 57	40 32 40 24	19 28 19 36	$23679 \\ 23752$	$\begin{array}{ c c }\hline 71\\72\\ \end{array}$	76321 76248	$24335 \\ 24410$	73	75665	00656 00658	2	99344	4
58	40 16	19 44	23823	73	76177	24484	74 75	75590 75516	00660	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	99342 99340	$\frac{3}{2}$
59 60	40 8	19 52	23895	74	76105	24558	76	75442	00663	2	99337	1
60	40 0	20 0	23967	76	76033	24632	78	75368	00665	2	99335	0
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
990			A		A	В		В	C		С	80°

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Seconds of time	1.	2*	3.	4.	5.	6.	7.
Prop. parts of cols. {A B C	9	19	28	38	47	57	66
	10	19	29	39	49	58	68
	0	1	1	1	1	2	2

70	MOOT
Page	7821

Log. Sines, Tangents, and Secants.

May	10°			A		A	В		В	C		C	169°
1	М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
2	0												60
31 33 36 20 22 24253 5 157747 24956 5 1039 20 12 240 9 24535 5 157747 24956 5 1039 20 12 240 8 24355 7 75605 9 25073 7 74927 00675 0 9.9322 54 7 33 4 20 6 24466 8 75544 25146 8 747874 00681 0 99319 53 9 38 48 21 12 24607 11 17383 25291 11 74788 00695 0 99310 9 11 38 24 218 14 75182 25555 15 74418 00690 0 99310 99 12 38 24 21 4 24888 15 75112 25565 16 74490 00690 0 99310 49													
4 39 28 20 22 23 5 75774 24926 5 75074 00674 0 99326 56 6 39 12 20 48 24395 7 75605 25073 7 74927 00678 0 99324 55 7 39 4 20 56 24166 8 75544 2519 9 74781 00683 0 99319 53 8 38 56 21 2 24607 10 75764 25219 9 74781 00683 0 99315 51 10 10 38 40 21 24 24781 11 10 75833 25292 11 74788 00685 0 99313 50 12 38 24 21 4 24881 14 75182 25510 14 74480 00692 0 99303 49 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>													
5 0 19 20 14 9 24:248 6 0 15:76:76 9 25:07:3 7 749:27 00678 0 9 99:32 54 7 39 4 20 68 21:46 8 75:54 25:10 8 74:54 00681 0 99:319 53 9 38 48 21:12 24:536 9 75:164 25:19 9 74:781 00683 0 99:317 52 10 10 14 12:12 24:678 13 75:552 25:385 12 74:63 00690 0 99:313 50 11 38 32 21:42 24:988 16 75:112 25:552 15 74:418 00690 0 99:30 49 12 38 21 52 24:988 16 75:102 25:553 16 74:942 00:90:00 99:30:04 42 15 <													
6 39 12 20 48 24365 7 7 75605 25073 7 74927 00678 0 99322 54 7 39 4 20 56 24466 8 75534 25146 25219 9 74781 00681 0 99319 53 8 38 56 21 14 245536 9 75464 25219 9 74781 00683 0 99317 53 10 10 38 40 12 12 0 9.24677 11 10.75933 9.2592 11 74708 00685 0 99315 51 11 38 32 12 128 24748 13 75252 25351 12 10.74635 10.0685 0 99313 51 12 38 24 21 36 24181 14 75182 25510 14 74490 00692 0 99308 48 12 38 24 21 36 24181 14 75182 25510 14 74490 00692 0 99308 47 14 38 8 21 12 22 24958 16 75042 25582 15 74418 00694 1 99306 47 14 38 8 12 152 24988 16 75042 25582 15 74418 00696 1 99308 48 15 10 38 0 12 20 9 25028 17 10.74972 9.5727 18 10.74935 00696 1 99301 49 16 37 52 22 28 25080 18 74902 25799 19 74201 00701 1 99297 43 18 37 36 22 24 25537 20 74763 25943 21 74057 00706 1 99297 43 18 37 36 22 25 24 25337 20 74638 25943 21 74057 00706 1 99297 43 18 37 36 22 32 25307 22 74603 25015 27 7385 00708 1 99299 41 19 37 28 22 36 25345 24 74858 26015 22 77895 00708 1 99299 41 20 10 37 20 1 22 40 9.2376 23 10.74624 9.26036 24 10.73914 10.00710 1 99298 42 21 37 12 22 48 25445 24 74555 26158 25 73842 00712 1 99298 39 22 37 4 22 56 25545 25 74868 26015 22 77895 00706 1 99283 39 24 36 48 23 22 25 255397 20 74763 256158 25 73842 00712 1 99283 39 25 37 4 22 56 25545 25 74868 26229 26 73771 00715 1 99283 39 26 36 32 2 32 8 25595 30 744120 26855 32 73415 00702 1 99283 39 27 36 40 12 30 4 25583 20 74763 26355 37 73494 00702 1 99283 39 28 36 16 23 44 25695 38 74005 26358 31 74055 26365 27 73449 00703 1 99283 39 29 36 8 8 23 52 25965 30 744120 26855 32 73415 00726 1 99283 37 30 10 36 0 1 24 0 9.26038 34 10.7397 9.2643 39 10.73586 00724 1 99285 38 31 35 56 2 24 8 26868 44 73194 26855 32 73415 00726 1 99283 37 32 34 35 52 24 8 28 26868 44 73194 26855 32 73415 00726 1 99283 37 34 34 35 25 2 4 28 26868 44 7398 60 7298 47 7378 60074 1 99285 38 34 36 6 23 4 2 2666 25868 47 7373 80 2778 40 72929 00748 1 99281 36 35 10 35 40 2 2 40 9.2673 3 1 10.7367 9.27148 41 10.72504 10.00767 2 9.99281 36 35 10 34 4 25 25 8 28686 44 73194 27806 5 77209 00746 1 99283 31 34 3	1			9. 24324	6	10.75676		$\overline{6}$	$\overline{10.75000}$				
8 38 56 21 4 24569 9 75464 25219 9 74788 00685 0 99315 51 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 38 4 12 24788 13 75252 25437 11 74683 0.0600 0 99303 49 12 38 24 21 8 24 18 14 75182 25510 14 74490 00602 0 99308 48 13 38 1 52 24988 16 75042 25582 15 74418 00606 1 99306 47 14 3 3 3 22 2 25098 18 74782 25727 18 10,74273 0.00701 1 992940 42 15 10	6												
9 38 48 21 12 2 24697 10 75938 25292 11 74708 00685 0 99315 50 11 38 32 21 28 24748 13 75252 25367 13 74458 00680 0 99318 50 12 38 24 21 38 24818 14 75182 25510 14 74490 00680 0 99318 48 13 38 16 21 44 24888 15 7512 25582 15 74418 00684 1 99308 48 13 38 16 21 44 24888 15 7512 25585 16 74418 00684 1 99308 48 14 38 32 52 24958 16 75102 25585 16 74418 00684 1 99308 48 15 15 15 15 15 15 15 15 15 15 15 15 15													
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100° A A B B C C 79°		i	Hour A. M.	!	Diff.	i		Diff.		·	Diff.		1
	1000			A		A	В		В	C		C	790

Seconds of time	13	28	38	48	5 ⁸	6s	7s
Prop. parts of cols. $\left\{ egin{matrix} A \\ B \\ C \end{array} \right\}$	9	17	26	34	43	51	60
	9	18	26	35	44	53	62
	0	1	1	1	1	2	2

Γ	TABLE 44. [Page 783											
			1	Log.	Sines, Tar	gents, and	l Sec	ants.				Ì
110			A		A	В		В	С		С	168°
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	10 32 0	1 28 0	9.28060	0	10. 71940	9. 28865	0	10. 71135	10.00805	0	9.99195	60
1 2	$\begin{array}{c c} 31 & 52 \\ 31 & 44 \end{array}$	$\begin{array}{cc}28&8\\28&16\end{array}$	$28125 \\ 28190$	$\frac{1}{2}$	71875 71810	28933 29000	$\frac{1}{2}$	71067 71000	00808 00810	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	99192 99190	59 58
3	31 36	28 24	28254	3	71746	29067	3	70933	00813	0	99187	57
$\frac{4}{5}$	31 28 10 31 20	$\frac{28 \ 32}{1 \ 28 \ 40}$	28319 9, 28384	$-\frac{4}{5}$	71681 10. 71616	$\frac{29134}{9.29201}$	$\frac{4}{5}$	70866 10. 70799	00815 10. 00818	$\frac{0}{0}$	$\frac{99185}{9,99182}$	$\frac{56}{55}$
6	31 12	28 48	28448	6	71552	29268	6	70732	00820	0	99180	54
7	7 31 4 28 56 28512 7 71488 29335 8 70665 00823 0 8 30 56 29 4 28577 8 71423 29402 9 70598 00825 0										99177 99175	$\frac{53}{52}$
9	30 48	29 12	28641	9	71359	29468	10	70532	00828	0	99172	51
10 11	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 29 20 29 28	$9.28705 \\ 28769$	10 11	10. 71295 71231	$9.29535 \\ 29601$	11- 12	10. 70465 70399	10.00830 00833	0	9. 99170 99167	50 49
12	30 24	29 36	28833	12	71167	29668	13	70332	00835	1	99165	48
13 14	30 16 30 8	$\begin{bmatrix} 29 & 44 \\ 29 & 52 \end{bmatrix}$	28896 28960	13 14	71104 71040	$29734 \\ 29800$	14 15	70266 70200	00838 00840	1 1	99162 99160	47 46
15	10 30 0	1 30 0	9. 29024	16	10.70976	9. 29866	16	10.70134	10.00843	1	9.99157	45
16 17	29 52 29 44	30 8 30 16	29087 29150	17 18	70913 70850	29932 29998	17 18	70068 70002	00845 00848	1 1	$99155 \\ 99152$	44 43
18	29 36	30 24	29214	19	70786	30064	19	69936	00850	1	99150	42
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$											$\frac{99147}{9,99145}$	$\frac{41}{40}$
$\frac{20}{21}$	29 12	30 48	29403	22	70597	30261	23	69739	00858	1	99142	39
22	$\begin{array}{ccc} 29 & 4 \\ 28 & 56 \end{array}$	30 56 31 4	29466 29529	23 24	70534 70471	30326 30391	$\begin{array}{c} 24 \\ 25 \end{array}$	69674 69609	00860 00863	1 1	99140 99137	38 37
$\begin{array}{c c} 23 \\ 24 \end{array}$	28 48	31 12	29591	25	70409	30457	26	69543	00865	_1_	99135	36
25	10 28 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9. 29654 29716	$\begin{array}{c} 26 \\ 27 \end{array}$	10. 70346 70284	9. 30522 30587	27 28	10. 69478 69413	10. 00868 00870	1	9. 99132 99130	35 34
$\frac{26}{27}$	28 32 28 24	$\begin{vmatrix} 31 & 28 \\ 31 & 36 \end{vmatrix}$	29779	28	70221	30652	29	69348	00873	1	99127	33
28	$\begin{array}{ccc} 28 & 16 \\ 28 & 8 \end{array}$	31 44 31 52	29841 29903	29 30	70159 70097	$30717 \\ 30782$	$\frac{30}{31}$	69283 69218	00876 00878	1 1	99124 99122	$\begin{array}{c c} 32 \\ 31 \end{array}$
29 30	$\frac{28}{10} \frac{8}{28} \frac{8}{0}$	$\frac{31}{1} \frac{32}{32} \frac{0}{0}$	9. 29966	31	10.70034	9.30846	32	10.69154	10.00881	1	9.99119	30
31	27 52	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	30028 30090	32 33	69972 69910	30911 30975	33 35	69089 69025	00883 00886	1 1	99117 99114	$\frac{29}{28}$
32 33	$\begin{array}{cccc} 27 & 44 \\ 27 & 36 \end{array}$	32 24	30151	34	69849	31040	36	68960	00888	1	99112	27
34	27 28	32 32	$\frac{30213}{9,30275}$	$\frac{35}{36}$	$\frac{69787}{10,69725}$	31104 9. 31168	$\frac{37}{38}$	$\frac{68896}{10.68832}$	$\frac{00891}{10.00894}$	$\frac{1}{2}$	$\frac{99109}{9.99106}$	$\frac{26}{25}$
35 36	$\begin{array}{cccc} 10 & 27 & 20 \\ & 27 & 12 \end{array}$	1 32 40 32 48	30336	37	69664	31233	39	68767	00896	2	99104	24
37	27 4	32 56 33 4	30398 30459	38, 39	69602 69541	$31297 \\ 31361$	40 41	68703 68639	00899 00901	2 2	99101 99099	$\begin{array}{c c} 23 \\ 22 \end{array}$
38 39	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	33 12	30521	40	69479	31425	42	68575	00904	2	99096	21
40	10 26 40	1 33 20	9. 30582 30643	$\begin{array}{ c c }\hline 41\\ 42\\ \end{array}$	10. 69418 69357	9.31489 31552	43 44	$10.68511\\68448$	10.00907 00909	$\frac{2}{2}$	9. 99093 99091	20 19
41 42	$\begin{array}{ccc} 26 & 32 \\ 26 & 24 \end{array}$	33 28 33 36	30704	43	69296	31616	45	68384	00912	2 2	99088	18
43	26 16 26 8	33 44 33 52	30765 30826	45 46	69235 69174	31679 31743	46 47	68321 68257	$00914 \\ 00917$	2 2	99086 99083	17 16
44 45	10 26 0	1 34 0	9.30887	47	10.69113	9.31806	49	10.68194	10.00920	2	9.99080	15
46	$25 52 \\ 25 44$	34 8	30947 31008	48 49	69053 68992	31870 31933	50 51	68130 68067	$00922 \\ 00925$	2 2	99078 99075	14· 13
47 48	25 36	34 16 34 24	31068	50	68932	31996	52	68004	00928	2	99072	12
49	25 28	34 32	31129 9.31189	$\frac{51}{52}$	$\frac{68871}{10.68811}$	$\frac{32059}{9.32122}$	$\frac{53}{54}$	$\frac{67941}{10.67878}$	00930 10.00933	$\frac{2}{2}$	$\frac{99070}{9.99067}$	$\frac{11}{10}$
50 51	$10 \ 25 \ 20 \ 25 \ 12$	1 34 40 34 48	31250	53	68750	32185	55	67815	00936	2	99064	9
52 53	$\begin{array}{cccc} 25 & 4 \\ 24 & 56 \end{array}$	34 56 35 4	31310 31370	54 55	68690 68630	$32248 \\ 32311$	56 57	67752 67689	00938 00941	$\frac{2}{2}$	99062 99059	8 7
54	24 48	35 12	31430	56	68570	32373	58	67627	00944	2	99056	6
55	$10 \ 24 \ 40 \ 24 \ 32$	1 35 20 35 28	9. 31490 31549	57 58	10. 68510 68451	$9.32436 \\ 32498$	59 60	10. 67564 67502	10. 00946 00949	$\frac{2}{2}$	9. 99054 99051	5 4
56 57	24 24	35 36	31609	59	68391	32561	61	67439	00952	2	99048	3
58 59	24 16 24 8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$31669 \\ 31728$	60	68331 68272	$\frac{32623}{32685}$	63 64	67377 67315	00954 00957	$\begin{vmatrix} 2\\3 \end{vmatrix}$	99046 99043	$\frac{2}{1}$
60	24 0	36 0	31788	62	68212	32747	65	67253	00960	3	99040	ō
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
1019	0		A	·	A	В		В	c		С	78°
						-					-	-0

Seconds of time	18	28	38	48	51	65	7:
Prop. parts of cols. $\left\{egin{array}{c} \mathbf{A} \\ \mathbf{B} \\ \mathbf{C} \end{array}\right.$	8	16	23	31	39	47	54
	8	16	24	32	40	49	57
	0	1	1	1	2	2	2



]	Page 784] TABLE 44.											
				Log.		igents, and	l Sec					
120			A Circ	n:œ	Λ	B	Dia	B	C	1	,	1670
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.		Cotangent.	Secant.	Diff.	Cosine.	М.
0	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 1 & 36 & 0 \\ 36 & 8 \end{bmatrix}$	9. 31788 31847	0	10. 68212 68153	$9.32747 \\ 32810$	$\begin{array}{c c} 0 \\ 1 \end{array}$	10. 67253 67190	10.00960 00962	0	9. 99040 99038	60 59
2 3	$\begin{array}{ccc} 23 & 44 \\ 23 & 36 \end{array}$	$\begin{array}{c} 36\ 16 \\ 36\ 24 \end{array}$	31907 31966	$\frac{2}{3}$	68093 68034	$\frac{32872}{32933}$	$\frac{2}{3}$	67128	00965 00968	. 0	99035	58
4	23 28	36 32	32025	_4_	67975	32995	4	67067 67005	00970	0	99032 99030	57 56
$\frac{5}{6}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccc} 1 & 36 & 40 \\ & 36 & 48 \end{array}$	$9.32084 \\ 32143$	5 6	$10.67916 \\ 67857$	9. 33057 33119	$\frac{5}{6}$	$\begin{array}{c} 10.66943 \\ 66881 \end{array}$	$10.00973 \\ 00976$	0	9. 99027 99024	55 54
7	23 4	36 56	32202	7	67798	33180	7	66820	00978	0	99022	53
8 9	$\begin{array}{cccc} 22 & 56 \\ 22 & 48 \end{array}$	$\begin{bmatrix} 37 & 4 \\ 37 & 12 \end{bmatrix}$	$32261 \\ 32319$	8	67739 67681	33242 33303	8 9	66758 66697	00981 00984	0	99019 99016	52 51
10 11	$\begin{array}{cccc} 10 & 22 & 40 \\ & 22 & 32 \end{array}$	1 37 20 37 28	9. 32378 32437	10 10	10. 67622 67563	9. 33365 33426	$\begin{array}{c} 10 \\ 11 \end{array}$	10. 66635 66574	10.00987	0	9. 99013	50
12	22 24	37 36	32495	11	67505	33487	12	66513	$00989 \\ 00992$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	99011 99008	49 48
13 14	$\begin{array}{cc} 22 & 16 \\ 22 & 8 \end{array}$	$\begin{array}{c c} 37 & 44 \\ 37 & 52 \end{array}$	$32553 \\ 32612$	12 13	67447 67388	33548 33609	13 14	66452 66 3 91	00995 00998	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	99005 99002	47 46
15	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 38 0	9. 32670	14	10.67330	9.33670	15	10.66330	10.01000	1	9.99000	45
$\frac{16}{17}$	21 44	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{32728}{32786}$	15 16	$67272 \\ 67214$	$33731 \\ 33792$	$\begin{array}{c} 16 \\ 17 \end{array}$	66269 66208	01003 01006	1	98997 98994	44 43
18 19	$\begin{array}{ccc} 21 & 36 \\ 21 & 28 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	32844 32902	17	67156 67098	33853 33913	18 19	66147 66087	01009 01011	$\begin{array}{c c} 1 \\ 1 \end{array}$	98991 98989	42 41
20	10 21 20	1 38 40	9.32960	19	10.67040	9.33974	20	10.66026	10.01014	1	9.98986	40
$\begin{array}{c c} 21 \\ 22 \end{array}$	$\begin{array}{ccc} 21 & 12 \\ 21 & 4 \end{array}$	$\begin{array}{c c} 38 & 48 \\ 38 & 56 \end{array}$	$33018 \\ 33075$	$\begin{vmatrix} 20 \\ 21 \end{vmatrix}$	66982 66925	$34034 \\ 34095$	$\frac{21}{22}$	65966 65905	$01017 \\ 01020$	$\frac{1}{1}$	98983 98980	39 38
23 24	20 56 20 48	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	33133 33190	22 23	66867 66810	$34155 \\ 34215$	$\frac{23}{24}$	$65845 \\ 65785$	$01022 \\ 01025$	1	98978 98975	37 36
25	10 20 40	1 39 20	9. 33248	24	10.66752	9.34276	$\overline{25}$	10.65724	10.01028	1	9.98972	35
$\frac{26}{27}$	$\begin{array}{cccc} 20 & 32 \\ 20 & 24 \end{array}$	39 28 39 36	$33305 \\ 33362$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	66695 66638	34336 34396	$\frac{26}{27}$	65664 65604	01031 01033	1	98969 98967	$\frac{34}{33}$.
28 29	$\begin{array}{ccc} 20 & 16 \\ 20 & 8 \end{array}$	39 44 39 52	$33420 \\ 33477$	27 28	66580 66523	$\frac{34456}{34516}$	28 29	65544 65484	01036	1	98964	32
30	10 20 0	1 40 0	9. 33534	29	10.66466	9. 34576	30	10. 65424	01039 10.01042	$\frac{1}{1}$	98961	$\frac{31}{30}$
31 32	1952 1944	$\begin{array}{c cccc} 40 & 8 \\ 40 & 16 \end{array}$	$33591 \\ 33647$	29 30	66409 66353	$34635 \\ 34695$	31 32	65365 65305	$01045 \\ 01047$	1 1	98955 98953	29 28
33	19 36	40 24 40 32	33704	31 32	66296	34755	33	65245	01050	2	98950	27
$\frac{34}{35}$	$\frac{19}{10} \frac{28}{19}$	$\frac{40.32}{1.40.40}$	$\frac{33761}{9.33818}$	33	$\frac{66239}{10.66182}$	$\frac{34814}{9.34874}$	$\frac{34}{35}$	$\frac{65186}{10.65126}$	01053 $10,01056$	$\frac{2}{2}$	$\frac{98947}{9,98944}$	$\frac{26}{25}$
36 37	19 12 19 4	40 48 · 40 56	33874 33931	34 35	66126 66069	$34933 \\ 34992$	36 37	65067 65008	$01059 \\ 01062$	$\frac{2}{2}$	98941 98938	24 23
38	18 56	41 4	33987	36	66013	35051	38	64949	01064	2	98936	22
$\frac{39}{40}$	$\frac{18 \ 48}{10 \ 18 \ 40}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	34043 9. 34100	$\frac{37}{38}$	$\frac{65957}{10.65900}$	$\frac{35111}{9.35170}$	$\frac{39}{40}$	$\frac{64889}{10.64830}$	01067 10.01070	$\frac{2}{2}$	$\frac{98933}{9.98930}$	$\frac{21}{20}$
41 42	18 32 18 24	41 28 41 36	$34156 \\ 34212$	39 40	65844	35229	41 42	64771	01073	2 2 2	98927	19
43	18 16	41 44	34268	41	$65788 \\ 65732$	$35288 \\ 35347$	43	64712 64653	$01076 \\ 01079$	2	98924 98921	18 17
$\frac{44}{45}$	$\begin{array}{c cccc} 18 & 8 \\ \hline 10 & 18 & 0 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	34324 9. 34380	$\frac{42}{43}$	$\frac{65676}{10.65620}$	35405 9, 35464	$\frac{44}{45}$	64595 10, 64536	$\frac{01081}{10,01084}$	$\frac{2}{2}$	$\frac{98919}{9.98916}$	16 15
46	17 52 17 44	42 8	34436	44	65564	35523	46	64477	01087	2	98913	14
47 48	17 36	42 16 42 24	$\frac{34491}{34547}$	45 46	65509 65453	$35581 \\ 35640$	47 48	64419 64360	01090 01093	$\begin{vmatrix} 2\\2 \end{vmatrix}$	98910 98907	13 12
$\frac{49}{50}$	$\frac{17}{10}$, $\frac{28}{17}$	42 32 1 42 40	34602 9. 34658	$\frac{47}{48}$	$\frac{65398}{10.65342}$	$\frac{35698}{9,35757}$	$\frac{49}{50}$	$\frac{64302}{10.64243}$	01096 10, 01099	$\frac{2}{2}$	$\frac{98904}{9.98901}$	11 10
51	17 12	42 48	34713	48	65287	35815	51	64185	01102	2	98898	9
52 53	17 4 16 56	42 56 43 4	$34769 \\ 34824$	49 50	65231 65176	35873 35931	52 53	64127 64069	01104 01107	$\frac{2}{2}$	98896 98893	8 7
$\frac{54}{55}$	$\frac{16\ 48}{10\ 16\ 40}$	43 12 1 43 20	$\frac{34879}{9.34934}$	$\frac{51}{52}$	$\frac{65121}{10,65066}$	35989	$\frac{54}{55}$	64011 10.63953	01110	$\frac{3}{3}$	98890	6
56	16 32	43 28	34989	53	65011	9. 36047 36105	56	63895	10. 01113 01116	3	9. 98887 98884	5 4
57 58	16 24 16 16	43 36 43 44	35044 35099	54 55	64956 64901	$36163 \\ 36221$	57 58	63837 63779	$01119 \\ 01122$	3	98881 98878	$\frac{3}{2}$
59 60	16 8 16 0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	35154 35209	56 57	64846 64791	36279 36336	59 60	63721 63664	$01125 \\ 01128$	3 3	98875 98872	1 0
M,	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	м.
102)		A		A	В		В	C		C	770
		_				0. 0.						

Seconds of time	1*	2:	31	4.8	5*	68	7:
Prop. parts of cols. $\left\{egin{aligned} A \\ B \\ C \end{array}\right\}$	7	14	21	29	36	43	50
	7	15	22	30	37	45	52
	0	1	1	1	2	2	2

TABLE 44. [Page 785												
			3	Log.	Sines, Tar	gents, and	l Sec	ants.				
130			A		A	В		В	c		C	1660
M.	Hour A. M.	Hour P.M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	10 16 0	1 44 0	9. 35209	-0	10.64791	9. 36336	0	10.63664	10.01128	0	9.98872	60
$\frac{1}{2}$	$15 52 \\ 15 44$	44 8 44 16	$35263 \\ 35318$	1 2	64737 64682	$36394 \\ 36452$	$\begin{vmatrix} 1\\2 \end{vmatrix}$	63606 63548	$01131 \\ 01133$	0	98869 98867	59 58
3	15 36	44 24	35373	3	64627	36509	3	63491	01136	ő	98864	57
4	15 28	44 32	35427	4	64573	36566	4	63434	01139	0	98861	56
5	10 15 20	1 44 40	9. 35481 35536	4	10. 64519	9. 36624 36681	5	10. 63376 63319	$\begin{array}{c} 10.01142 \\ 01145 \end{array}$	0	9. 98858 98855	55 54
6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	44 48 44 56	35590	6	64464	36738	6	63262	01148	ŏ	98852	53
8	14 56	45 4	35644	7	64356	36795	7	63205	01151	0	98849	52
9	14 48 10 14 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	35698	$\frac{8}{9}$	$\frac{64302}{10.64248}$	36852 9. 36909	$\frac{8}{9}$	63148 10. 63091	01154 10.01157	$\frac{0}{1}$	98846 9.98843	$\frac{51}{50}$
10 11	10 14 40 14 32	1 45 20 45 28	9. 35752 35806	10	64194	36966	10	63034	01160	1	98840	49
12	14 24	45 36	35860	11	64140	37023	11	62977	01163	1	98837	48
13	14 16 14 8	45 44 45 52	35914 35968	11 12	64086 64032	37080 37137	$\begin{array}{ c c }\hline 12\\13\\ \end{array}$	62920 62863	$01166 \\ 01169$	1 1	98834 98831	47 46
$\frac{14}{15}$	$\begin{array}{c cccc} 14 & 8 \\ \hline 10 & 14 & 0 \end{array}$	$\frac{43}{1} \frac{32}{46} \frac{32}{0}$	9, 36022	13	10. 63978	9. 37193	14	10. 62807	10. 01172	1	9. 98828	$\frac{40}{45}$
16	13 52	46 8	36075	14	63925	37250	15	62750	01175	1	98825	44
17	13 44 13 36	46 16	36129 36182	15 16	63871 63818	37306 37363	16 17	62694 62637	01178 01181	1 1	98822 98819	43
18 19	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	36236	17	63764	37419	18	62581	01181	1	98816	42
20	10 13 20	1 46 40	9.36289	18	10.63711	9.37476		10.62524	10.01187	1	9.98813	40
21	13 12	46 48	36342	18	63658	37532	19 20	62468	01190	1 1	98810	39
22 23	$\begin{array}{cccc} 13 & 4 \\ 12 & 56 \end{array}$	46 56 47 4	36395 36449	19 20	63605 63551	37588 37644	20	62412 62356	01193 01196	1	98807 98804	38 37
24	12 48	47 12	36502	21	63498	37700	22	62300	01199	ī	98801	36
25	10 12 40	1 47 20	9. 36555	22	10.63445	9.37756	23	10.62244	10.01202	1	9.98798	35
$\frac{26}{27}$	$12 \ 32$ $12 \ 24$	47 28 47 36	36608 36660	23 24	63392 63340	$37812 \\ 37868$	$\begin{vmatrix} 24 \\ 25 \end{vmatrix}$	62188 62132	$01205 \\ 01208$	1	98795 98792	34 33
28	12 16	47 44	36713	25	63287	37924	26	62076	01211	i	98789	32
29	12 8	47 52	36766	25	63234	37980	27	62020	01214	1	98786	31
30 31	$10 \ 12 \ 0 \ 11 \ 52$	$\begin{array}{ccc}1&48&0\\48&8\end{array}$	$9.36819 \\ 36871$	26 27	10. 63181 63129	9. 38035 38091	28 29	10. 61965 61909	$\begin{array}{c} 10.01217 \\ 01220 \end{array}$	2 2	9. 98783 98780	30 29
32	11 44	48 16	36924	28	63076	38147	30	61853	01223	2	98777	28
33	11 36	48 24	36976	29	63024	38202	31	61798	01226	2	98774	27
$\frac{34}{35}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{48\ 32}{1\ 48\ 40}$	37028 9. 37081	$\frac{30}{31}$	62972 10. 62919	38257 9, 38313	$\frac{32}{32}$	$\frac{61743}{10.61687}$	01229 10.01232	$\frac{2}{2}$	$\frac{98771}{9.98768}$	$\frac{26}{25}$
36	11 12	48 48	37133	32	62867	38368	33	61632	01235	2	98765	24
37	11 4	48 56	37185	32	62815	38423	34	61577	01238	2 2	98762	23
38 39	10 56 10 48	49 4 49 12	37237 37289	33 34	$62763 \\ 62711$	38479 38534	35 36	61521 61466	$01241 \\ 01244$	2 2	98759	22 21
40	10 10 40	1 49 20	9. 37341	35	10. 62659	9. 38589		10.61411	10.01247	2	9.98753	20
41	10 32	49 28	37393	36	62607	38644	38	61356	01250	2	98750	19
42 43	10 24 10 16	49 36 49 44	37445 37497	37 38	$62555 \\ 62503$	38699 38754	39 40	61301 61246	$01254 \\ 01257$	2 2	98746 98743	18 17
44	10 8	49 52	37549	39	62451	38808.	41	61192	01260	2	98740	16
	10 10 0	1 50 0	9.3760	39	10.62400	9. 38863		10.61137	10.01263	2	9.98737	15
46 47	9 52 9 44	50 8 50 16	37652 37703	40	62348 62297	38918 38972	43 44	61082 61028	01266 01269	$\begin{vmatrix} 2\\2 \end{vmatrix}$	98734 .98731	14 13
48	9 36	50 24	37755	42	62245	39027	45	60973	01209	2	98728	12
49	9 28	50 32	37806	43	62194	39082	45	60918	01275	2	98725	11
50 51	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 50 40 50 48	9. 37858 37909	44	10.62142	9.39136		10.60864	10.01278	3	9.98722	10
52	9 4	50 56	37960	45 46	62091 62040	39190 39245	47 48	60810 60755	01281 01285	3	98719 98715	. 9 8
53	8 56	51 4	38011	47	61989	39299	49	60701	01288	3	98712	7
$\frac{54}{55}$	8 48 10 8 40	51 12 1 51 20	9. 38113	47	61938	39353	50	60647	01291	3	98709	6
56	8 32	51 20	38164	48 · 49	10. 61887 61836	9.39407 39461	$\begin{array}{c} 51 \\ 52 \end{array}$	10. 60593 60539	$10.01294\\01297$	3	9. 98706 98703	5 4
57	8 24	51 36	38215	50	61785	39515	53	60485	01300	3	98700	3 2
58 59	8 16 8 8	51 44 51 52	38266 38317	51 52	61734 61683	39569 39623	54 55	60431 60377	01303 01306	3	98697	$\begin{array}{c c} 2 \\ 1 \end{array}$
60	8 0	52 0	38368	53	61632	39623	56	60323	01310	3	98694 98690	0
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
103°			A		A	В		B	C	(C C	76°

Seconds of time	1:	2*	3*	4*	51	65	7=
Prop. parts of cols. ${A \choose B \choose C}$	7	13	20	26	33	39	46
	7	14	21	28	35	42	49
	0	1	1	2	2	2	3

1	Page 786] TABLE 44.												
'	•		:	Log.	Sines, Ta	ngents, an	d Sec						
140			A	,	A	В		В	c		C	165°	
M.	Hour A. M.	Hour P. M	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent	Secant.	Diff.	Cosine.	М.	
0	10 8 0	1 52 0	9. 38368	0	10. 61632	9. 39677	0	10.60323	10.01310	0	9. 98690	60	
$\frac{1}{2}$	$\begin{array}{cccc} 7 & 52 \\ 7 & 44 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	38418 38469	$\begin{vmatrix} 1\\2 \end{vmatrix}$	61582	39731 39785	$\begin{vmatrix} 1\\2 \end{vmatrix}$	60269	01313 01316	0	98687 98684	59 58	
3	7 36	52 24 52 32	38519 38570	$\frac{2}{3}$	61481	39838	3	60162 60108	01319 01322	0	98681	57	
$\frac{4}{5}$	$\frac{728}{10720}$	$\frac{52}{1} \frac{52}{52} \frac{32}{40}$	9, 38620	$\frac{3}{4}$	$\frac{61430}{10.61380}$	39892 9. 39945	$\frac{3}{4}$	10. 60055	10. 01325	0	98678 9. 98675	56 55	
6	7 12	52 48	38670	5 6	61330	39999	5 6	60001	01329 01332	0	98671	54	
7 8	$\begin{array}{ccc} 7 & 4 \\ 6 & 56 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	38721 38771	7	61279 61229	40052 40106	7	599 - 8 59894	01335	0	98668 98665	53 52	
9	6 48	53 12	38821	$\frac{7}{2}$	61179	40159	8	59841	01338	0	98662	51	
10 11	$ \begin{array}{cccc} 10 & 6 & 40 \\ 6 & 32 \end{array} $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9. 38871 38921	8 9	10. 61129 61079	9. 40212 40266	$\begin{vmatrix} 9 \\ 10 \end{vmatrix}$	10. 59788 59734	10. 01341 01344	1	9. 98659 98656	50 49	
12 13	6 24 6 16	53 36 53 44	38971 39021	10 11	61029	40319 40372	10 11	59681 59628	01348 01351	1 1	98652 98649	48	
14	6 8	53 44 53 52	39071	11	60979 60929	40425	12	59575	01354	1	98646	47 46	
15	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 54 0 54 8	9. 39121	$\frac{12}{13}$	10. 60879 60830	9. 40478 40531	13 14	10. 59522 59469	10. 01357 01360	1	9. 98643	45	
16 17	5 44	54 8 54 16	39170 39220	14	60780	40584	15	59416	01364	1	98640 98636	44 43	
18 19	5 36 5 28	54 24 54 32	39270 39319	15 15	60730 60681	40636 40689	16 17	59364 59311	01367 01370	1 1	98633 98630	42 41	
20	$\frac{520}{10}$	1 54 40	9. 39369	16	10.60631	9.40742	17	$\frac{53511}{10.59258}$	10.01373	1	9.98627	40	
21 22	5 12 5 4	54 48 54 56	39418 39467	17 18	60582 60533	40795 40847	18 19	59205 59153	01377 01380	1	98623 98620	39 38	
23	4 56	55 4	39517	19	60483	40900	20	59100	01383	1	98617	37	
$\frac{24}{25}$	$\begin{array}{c c} & 4 & 48 \\ \hline 10 & 4 & 40 \end{array}$	$\begin{array}{r rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	39566 9.39615	$\frac{20}{20}$	60434 10. 60385	40952 9, 41005	$\frac{21}{22}$	59048 10, 58995	01386 10. 01390	$\frac{1}{1}$	98614	$\frac{36}{35}$	
26	4 32	55 28	39664	21	60336	41057	23	58943	01393	1	98607	34	
27 28	4 24 4 16	55 36 55 44	39713 39762	$\begin{array}{ c c }\hline 22\\23\\ \end{array}$	60287 60238	41109 41161	$\begin{vmatrix} 23 \\ 24 \end{vmatrix}$	58891 58839	01396 01399	$\frac{1}{2}$	98604 98601	33 32	
29	4 8	55 52	39811	24	60189	41214	$\frac{25}{25}$	58786	01403	2	98597	31	
30 31	$\begin{array}{ccc} 10 & 4 & 0 \\ & 3 & 52 \end{array}$	$\begin{array}{c cc} 1 & 56 & 0 \\ & 56 & 8 \end{array}$	9.39860 39909	24 25	10. 60140 60091	9.41266 41318	26 27	10. 58734 58682	10. 01406 01409	$\frac{2}{2}$	9. 98594 98591	30 29	
32	3 44	56 16	39958	26	60042	41370	28	58630	01412	2	98588	28	
33 34	3 36 3 28	56 24 56 32	40006 40055	27 28	59994 59945	41422 41474	30	58578 58526	01416 01419	$\begin{vmatrix} 2\\2 \end{vmatrix}$	98584 98581	27 26	
35	10 3 20	1 56 40	9.40103	29	10. 59897	9.41526	30	10. 58474	01422	2	9. 98578	25	
36 37	$\begin{array}{ccc} 3 & 12 \\ 3 & 4 \end{array}$	56 48 56 56	40152 40200	29 30	59848 59800	$41578 \\ 41629$	$\begin{vmatrix} 31 \\ 32 \end{vmatrix}$	58422 58371	01426 01429	2 2	98574 98571	24 23	
38	2 56	57 4	40249	31	59751	41681	33	58319	01432	2	98568	22	
$\frac{39}{40}$	$\frac{2\ 48}{10\ 2\ 40}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	40297 9, 40346	$\frac{32}{33}$	$\frac{59703}{10.59654}$	41733 9.41784	$\frac{34}{35}$	58267 10, 58216	01435 10. 01439	$-\frac{2}{2}$	98565 9. 98561	$\frac{21}{20}$	
41	2 32	57 28	40394	33	59306	41836	36	58164	01442	2	98558	19	
42 43	$\begin{array}{cccc} 2 & 24 \\ 2 & 16 \end{array}$	57 36 57 44	40442 40490	34 35	59558 59510	41887 41939	36	58113 58061	01445 01449	$\begin{vmatrix} 2\\2 \end{vmatrix}$	98555 98551	18 17	
44	2 8	57 52	40538	36	59462	41990	38	58010	01452	2	98548	16	
45 46	$\begin{array}{ccc}10&2&0\\&1&52\end{array}$	$\begin{array}{c cc} 1 & 58 & 0 \\ 58 & 8 \end{array}$	9. 40586 40634	37 37	10. 59414 59366	9. 42041 42093	39 40	10. 57959 57907	10. 01455 01459	3	9. 98545 98541	15 14	
47	1 44	58 16	40682	38	59318	42144	41	57856	01462	3	98538	13	
48 49	1 36 1 28	58 24 58 32	40730 40778	39 40	59270 59222	42195 42246	42	57805 57754	01465 01469	3 3	98535 98531	12 11	
50	10 1 20	1 58 40	9.40825	41	10. 59175	9.42297	43	10. 57703	10.01472	3	9.98528	10	
51 52	$\begin{array}{c} 1 & 12 \\ 1 & 4 \end{array}$	58 48 58 56	40873 40921	42	59127 59079	42348 42399	44 45	57652 57601	01475 01479	3 3	98525 98521	8	
53	0 56	59 4	40968	43	59032	42450	46	57550	01482	3 3	98518	7	
55	$ \begin{array}{c cccc} & 0 & 48 \\ \hline 10 & 0 & 40 \end{array} $	59 12 1 59 20	41016 9. 41063	$\frac{44}{45}$	$\frac{58984}{10.58937}$	42501 9, 42552	$\frac{47}{48}$	57499 10. 57448	01485 10. 01489	3	98515 9. 98511	$\frac{6}{5}$	
56	0 32	59 28	41111	46	58889	42603	49	57397	01492	3	98508	4	
57 58	0 24 0 16	59 36 59 44	41205	46 47	58842 58795	42653 42704	50	57347 57296	01495 01499	3	98505 98501	3 2	
											98498 98494	1 0	
										-		_	
M.	Hour P. M.	Hour A. M	1	Diff.	1	•	. Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.	
1049			A		A	В		В	С		С	750	
		ſ	Seconds of	time.	1	2s 3s	48	5 6	7:				
-													

 Prop. parts of cols. $\left\{ egin{matrix} A \\ B \\ C \end{array} \right.$

	TABLE 44. [Page 787]												
				Log.	Sines, Tar		l Sec						
150			A		A	В		В	С			1640	
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.	
0	10 0 0	2 0 0	9.41300	0	10.58700	9. 42805	0	10.57195	10.01506	0	9. 98494	60	
1 2	9 59 52 59 44	$\begin{array}{ccc} 0 & 8 \\ 0 & 16 \end{array}$	41347 41394	$\frac{1}{2}$	58653 58606	$\frac{42856}{42906}$	$\frac{1}{2}$	57144 57094	$01509 \\ 01512$	0	$98491 \\ 98488$	59 58	
3	59 36	0 24	41441	2	58559	42957	2	57043	01516	0	98484	57	
4	59 28	0 32	41488	$\frac{3}{4}$	58512 10, 58465	$\frac{43007}{9,43057}$	$\frac{3}{4}$	$\frac{56993}{10.56943}$	01519 10.01523	$\left \frac{0}{0} \right $	$\frac{98481}{9,98477}$	$\frac{56}{55}$	
5 6	9 59 20 1 59 12	2 0 40 0 48	$9.41535 \\ 41582$	4 5	58418	43108	5	56892	01526	0	98474	54	
7	59 4	0 56	41628	5	58372	43158	6	56842	01529	0	98471	$\begin{bmatrix} 58 \\ 52 \end{bmatrix}$	
8	58 56 58 48	$\begin{array}{ccc} 1 & 4 \\ 1 & 12 \end{array}$	$41675 \\ 41722$	6	58325 58278	$43208 \\ 43258$	$\begin{vmatrix} 7 \\ 7 \end{vmatrix}$	56792 56742	$01533 \\ 01536$	0	98467 98464	51	
10	9 58 40	2 1 20	9.41768	8	10.58232	9. 43308	8	10.56692	10.01540	1	9. 98460	.50	
11	58 32	1 28	41815	8 9	58185 58139	$43358 \\ 43408$	9 10	56642 56592	01543 01547	1	98457 98453	49	
12 13	58 24 58 16	$\begin{array}{ccc} 1 & 36 \\ 1 & 44 \end{array}$	41861 41908	10	58092	43458	11	56542	01550	i	98450	47	
14	58 8	1 52	41954	11	58046	43508	11	56492	01553	1	98447	46	
15 16	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$egin{pmatrix} 2 & 2 & 0 \ 2 & 8 \end{matrix}$	9. 42001 42047	$\begin{array}{c c} 11 \\ 12 \end{array}$	10. 57999 57953	9. 43558 43607	12 13	10. 56442 56393	$10.01557 \\ 01560$	1	9. 98443 98440	45 44	
17	57 44	2 16	42093	13	57907	43657	14	56343	01564	1	98436	43	
18	57 36	$\begin{array}{cc}2&24\\2&32\end{array}$	42140	14	57860 57814	43707 43756	15 16	56293 56244	$01567 \\ 01571$	1 1	98433 98429	42 41	
$\frac{19}{20}$	$\frac{57 28}{9 57 20}$	$\frac{2\ 32}{2\ 2\ 40}$	$\frac{42186}{9,42232}$	$\frac{14}{15}$	57814 10. 57768	9. 43806	$\frac{16}{16}$	10. 56194	$\frac{01371}{10.01574}$	$\frac{1}{1}$	9.98426	40	
21	57 12	2 48	42278	16	57722	43855	17	56145	01578	1	98422	39	
22 23	57 4 56 56	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	42324 42370	17 17	57676 57630	43905 43954	18 19	56095 56046	$01581 \\ 01585$	1	98419 98415	38	
24	56 48	3 12	42416	18	57584	44004	20	55996	01588	1	98412	36	
25	9 56 40	2 3 20	9. 42461	19	10.57539	9.44053	20	10.55947	10. 01591	1	9. 98409	35	
26 27	56 32 56 24	3 28 3 36	$42507 \\ 42553$	$\frac{20}{21}$	57493 57447	44102 44151	$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	55898 55849	$01595 \\ 01598$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	98405 98402	34	
28	56 16	3 44	42599	21	57401	44201	23	55799	01602	2	98398	32	
29	56 8	3 52	42644	22	57356	$\frac{44250}{9,44299}$	$\frac{24}{25}$	$\frac{55750}{10.55701}$	01605 10.01609	$\frac{2}{2}$	$\frac{98395}{9.98391}$	$\frac{31}{30}$	
30 31	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccc} 2 & 4 & 0 \\ & 4 & 8 \end{array}$	$9.42690 \\ 42735$	$\begin{array}{c c} 23 \\ 24 \end{array}$	10.57310 57265	9. 44299	$\frac{25}{25}$	55652	01612	$\frac{2}{2}$	98388	29	
32	55 44	4 16	42781	24	57219	44397	26	55603	01616	2	98384	28	
33 34	55 36 55 28	4 24 4 32	42826 42872	25 26	57174 57128	44446 44495	27 28	55554 55505	$01619 \\ 01623$	$\frac{2}{2}$	98381 98377	$\frac{27}{26}$	
35	9 55 20	$\frac{1}{2} \frac{32}{4} \frac{40}{40}$	9. 42917	$\frac{20}{27}$	10.57083	9.44544	29	$\overline{10.55456}$	10.01627	2	9.98373	25	
36	55 12	4 48	42962	27	57038	44592	29	55408	01630	2	98370	24	
37 38	55 4 54 56	$\begin{bmatrix} 4 & 56 \\ 5 & 4 \end{bmatrix}$	43008 43053	$\frac{28}{29}$	56992 56947	44641 44690	$\frac{30}{31}$	55359 55310	$01634 \\ 01637$	2 2	98366 98363	$\begin{vmatrix} 23 \\ 22 \end{vmatrix}$	
39	54 48	5 12	43098	30	56902	44738	32	55262	01641	2	98359	21	
40	9 54 40 54 32	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9. 43143 43188	30 31	10. 56857 56812	9. 44787 44836	33 34	$10.55213 \\ 55164$	$10.01644\\01648$	$\frac{2}{2}$	9. 98356 98352	20 19	
41 42	54 32 54 24	5 28 5 36	43188	32	56767	44884	34	55116	01651	2	98349	18	
43	54 16	5 44	43278	33	56722	44933	35	55067	01655	3	98345	17	
44 45	54 8 9 54 0	$\frac{5 \ 52}{2 \ 6 \ 0}$	43323 9. 43367	$\frac{33}{34}$	56677 10. 56633	$\frac{44981}{9,45029}$	$\frac{36}{37}$	55019 10, 54971	01658 10.01662	$\frac{3}{3}$	$\frac{98342}{9.98338}$	$\frac{16}{15}$	
46	53 52	6 8	43412	35	56588	45078	38	54922	01666	3	98334	14	
47	53 44	$\begin{array}{c c} 6 & 16 \\ 6 & 24 \end{array}$	43457	36	56543 56498	$45126 \\ 45174$	38	54874 54826	01669 01673	3	98331 98327	13 12	
48 49	53 36 53 28	6 32	43546	$\begin{vmatrix} 36 \\ 37 \end{vmatrix}$	56454	45174	39	54778	01676	3	98324	11	
50	9 53 20	2 6 40	9. 43591	38	10.56409	9.45271	41	10.54729	10.01680	3	9.98320	10	
51 52	53 12 53 4	6 48 6 56		39	56365 56320	45319 45367	42 43	54681 54633	01683 01687	3 3	98317 98313	9 8	
53	52 56	7 4	43724	40	56276	45415	43	54585	01691	3	98309	7	
54	52 48	7 12		41	56231	45463	44	54537	01694	3	98306	$-\frac{6}{5}$	
55 56	9 52 40 52 32	$\begin{bmatrix} 2 & 7 & 20 \\ 7 & 28 \end{bmatrix}$		42	$10.56187\\56143$	9. 45511 45559	45 46	10. 54489 54441	10. 01698 01701	$\frac{3}{3}$	9. 98302 98299	5 4	
57	52 24	7 36	43901	43	56099	45606	47	54394	01705	3	98295	3	
58 59	52 16 52 8	7 44 7 52		44 45	56054 56010	45654 45702	47	54346 54298	01709 01712	3	98291 98288	$\begin{vmatrix} 2\\1 \end{vmatrix}$	
60	52 0	8 0		46	55966	45750	49	54250	01716	4	98284	0	
М.	Hour P. M.	Hour A. M	. Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.	
105	0		A		A	В		В	С		С	740	
-													

Seconds of time	1,	28	34	40	5"	68	7:
Prop. parts of cols.	A 6	11	17	23	28	34	40
	B 6	12	18	25	31	37	43
	C 0	1	1	2	2	3	3

I	Page 788]			T	ABLE 4	4.					,
				Log.		ngents, and	Sec					
16°			A	,	A	В	1	В	C		C	163°
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	$9520 \\ 5152$	$\begin{bmatrix}2&8&0\\8&8\end{bmatrix}$	9.44034	0	$10.55966 \\ 55922$	9.45750	0	$10.54250 \\ 54203$	10. 01716	0	9. 98284	60
$\begin{vmatrix} 1\\2 \end{vmatrix}$	51 44	$\begin{bmatrix} 8 & 8 \\ 8 & 16 \end{bmatrix}$	$44078 \\ 44122$	1	55878	45797 45845	$\frac{1}{2}$	54155	$01719 \\ 01723$	$\begin{vmatrix} 0 \\ 0 \end{vmatrix}$	98281 98277	59 58
3	51 36	8 24	44166	2	55834	45892	2	54108	_01727	0	98273	57
$\frac{4}{5}$	$\frac{51}{9} \frac{28}{51}$	$\frac{8\ 32}{2\ 8\ 40}$	$\frac{44210}{9.44253}$	$\frac{3}{4}$	55790 10. 55747	$\frac{45940}{9.45987}$	$\frac{3}{4}$	$\frac{54060}{10.54013}$	$\frac{01730}{10.01734}$	$\frac{0}{0}$	$\frac{98270}{9.98266}$	$\frac{56}{55}$
6	51 12	8 48	44297	4	55703	46035	5	53965	01738	0	98262	54
8	$ \begin{array}{rrr} 51 & 4 \\ 50 & 56 \end{array} $	$\begin{bmatrix} 8 & 56 \\ 9 & 4 \end{bmatrix}$	44341 44385	$\begin{vmatrix} 5 \\ 6 \end{vmatrix}$	55659 55615	$46082 \\ 46130$	$\frac{5}{6}$	53918 53870	$01741 \\ 01745$	$\begin{vmatrix} 0 \\ 0 \end{vmatrix}$	98259 98255	53 52
9	50 48	9 12	44428	_6	55572	46177	_7	53823	01749	1	98251	51
10 11	$95040 \\ 5032$	$\begin{array}{cccc} 2 & 9 & 20 \\ & 9 & 28 \end{array}$	9. 44472 44516	7 8	10. 55528 55484	$9.46224\\46271$	8	$10.53776\\53729$	$\begin{array}{c} 10.01752 \\ 01756 \end{array}$	1	9. 98248 98244	50 49
12	$50 \ 24$	9 36	445 5 9	9	55441	46319	9	53681	01760	1	98240	48
13 14	50 16 50 8	$944 \\ 952$	$\frac{44602}{44646}$	9	55398 55354	$46366 \\ 46413$	10 11	53634 53587	01763 01767	1 1	98237 98233	47 46
$\frac{11}{15}$	9 50 0	$\frac{3.02}{2.10}$	9. 44689	11	10. 55311	9. 46460	$\frac{11}{12}$	10. 53540	10. 01771	1	9.98229	45
16	49 52	10 8	44733	11	55267	46507	12	53493	01774	1	98226	44
17 18	49 44 49 36	$10\ 16\ 10\ 24$	44776 44819	12 13	55224 55181	$46554 \\ 46601$	13 14	53446 53399	$01778 \\ 01782$	1 1	98222 98218	43 42
19	49 28	10 32	44862	14	55138	46648	15	53352	01785	1	98215	41
$\frac{20}{21}$	9 49 20 49 12	$\begin{bmatrix} 2 & 10 & 40 \\ 10 & 48 \end{bmatrix}$	9. 44905 44948	14 15	$10.55095 \\ 55052$	$9.46694 \\ 46741$	15 16	$10.53306\\53259$	10. 01789 01793	.1	9. 98211 98207	40 39
22	49 4	10 56	44992	16	55008	46788	17	53212	01796	1	98204	38
23 24	$\frac{48}{48} \frac{56}{48}$	$\begin{array}{c c} 11 & 4 \\ 11 & 12 \end{array}$	45035 45077	16 17	54965 54923	$46835 \\ 46881$	18 19	53165 53119	01800 01804	1 1	98200 98196	37 36
25	9 48 40	2 11 20	9. 45120	18	10. 54880	9. 46928	$\frac{10}{19}$	$\frac{53113}{10.53072}$	10. 01808	$\frac{1}{2}$	9. 98192	35
26 27	$\frac{48}{48} \frac{32}{24}$	$\begin{array}{cccc} 11 & 28 \\ 11 & 36 \end{array}$	45163	18 19	54837	46975	$\frac{20}{21}$	53025	01811	2 2	98189	34
28	48 16	11 44	45206 45249	20	54794 54751	47021 47068	22	52979 52932	01815 01819	2	98185 98181	33 32
29	48 8	11 52	45292	21	54708	47114	22	52886	01823	2	98177	31
30 31	9480	$\begin{bmatrix} 2 & 12 & 0 \\ 12 & 8 \end{bmatrix}$	9. 45334 45377	$\begin{array}{ c c }\hline 21\\22\\ \end{array}$	$10.54666\\54623$	$9.47160 \\ 47207$	23 24	10. 52840 52793	$\begin{array}{c} 10.01826 \\ 01830 \end{array}$	$\frac{2}{2}$	9. 98174 98170	$\frac{30}{29}$
32	47 44	12 16	45419	23	54581	47253	25	52747	01834	2	98166	28.
33 34	$\begin{array}{c} 47 & 36 \\ 47 & 28 \end{array}$	$\begin{array}{cccc} 12 & 24 \\ 12 & 32 \end{array}$	$45462 \\ 45504$	$\begin{vmatrix} 23 \\ 24 \end{vmatrix}$	54538 54496	47299 47346	26 26	$52701 \\ 52654$	01838 01841	$\begin{vmatrix} 2\\2 \end{vmatrix}$	98162 98159	27 26
35	9 47 20	2 12 40	9.45547	25	10. 54453	9.47392		10.52608	10.01845	2	9.98155	25
36 37	$\begin{array}{cccc} 47 & 12 \\ 47 & 4 \end{array}$	$\begin{array}{c c} 12 & 48 \\ 12 & 56 \end{array}$	$^{\cdot}45589$ 45632	$\begin{vmatrix} 26 \\ 26 \end{vmatrix}$	54411 54368	47438 47484	28 29	52562 52516	$01849 \\ 01853$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	98151 98147	24 23
38	46 56	13 4	45674	27	54326	47530	29	52470	01856	2	98144	22
$\frac{39}{40}$	9 46 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	45716 9. 45758	$\frac{28}{28}$	$\frac{54284}{10.54242}$	$\frac{47576}{9,47622}$	$\frac{30}{31}$	$\frac{52424}{10.52378}$	$\frac{01860}{10.01864}$	$\frac{2}{2}$	$\frac{98140}{9.98136}$	$\frac{21}{20}$
41	46 32	13 28	45801	29	54199	47668	32	52332	01868	3	98132	19
42 43	46 24 46 16	13 36	45843	30	54157	47714	32	52286	01871	3	98129	18
43	. 46 8	13 44 13 52	45885 45927	31	54115 54073	47760 47806	34	52240 52194	01875 01879	3	98125 98121	17 16
45	9 46 0	2 14 0	9. 45969	32	10.54031	9. 47852	35	F0=00	10.01883	3	9. 98117	15
46 47	45 52 45 44	$\begin{array}{c c} 14 & 8 \\ 14 & 16 \end{array}$	46011 46053	33	53989	47897 47943	36 36	$52103 \\ 52057$	01887 01890	3	98113 98110	13
48	45 36	14 24	_46095	34	53905	47989	37	52011	01894_	. 3	98106	12
$\frac{49}{50}$	45 28 9 45 20	$\frac{14 \ 32}{2 \ 14 \ 40}$	46136 9. 46178	$\frac{35}{36}$	$\frac{53864}{10.53822}$	$\frac{48035}{9.48080}$	$\frac{38}{39}$	51965 10. 51920	$\frac{01898}{10.01902}$	$\frac{3}{3}$	$\frac{98102}{9,98098}$	$\frac{11}{10}$
51	45 12	14 48	46220	36	53780	48126	39	51874	01906	3	98094	9
52 53	$\begin{array}{ccc} 45 & 4 \\ 44 & 56 \end{array}$	14 56 15 4	46262 46303	37 38	53738 53697	$48171 \\ 48217$	40	51829 51783	$01910 \\ 01913$	3	98090 98087	8 7
54	44 48	15 12	46345	38	53655	48262	42	51738	01917	3	98083	6
55 56	9 44 40 44 32	2 15 20 15 28	9. 46386 46428	39 40	10. 53614 53572	9. 48307 48353	43	10. 51693 51647	$\begin{array}{c} 10.01921 \\ 01925 \end{array}$	3 3	9. 98079 98075	5 4
57	44 24	15 36	46469	41	53531	48398	44	51602	01929	4	98071	3
58	$\begin{array}{r} 44.16 \\ 44.8 \end{array}$	15 44 15 52	46511	41	53489 53448	48443 48489	45	51557 51511	01933 01937	4	98067 98063	2 1
59 60	44 0	16 0	$46552 \\ 46594$	42 43	53406	48534	46 46	51466	01940	4	98060	ō
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
1060			A		A	В		В	С		C	73°
distance.						a. a.						

Seconds of time	1,	24	3,	45	5*	6:	7*
Prop. parts of cols. $\left\{egin{array}{c} A \\ B \\ C \end{array}\right\}$	5	11	16	21	27	32	37
	6	12	17	23	29	35	41
	0	1	1	2	2	3	3

	TABLE 44. [Page 789 Log. Sines, Tangents, and Secants.												
1			1	Log.	Sines, Tar	-	l Sec	ants.					
170			A		A	В		В	C		C	1620	
М.	Hour A. M.	Hour P. M.	Sine.	Diff	Cosecant.	Tangent.	Diff.	Cotangent	Secant.	Diff.	Cosine.	M.	
0	9 44 0	2 16 0	9.46594	0	10. 53406	9.48534	0	10. 51466	10.01940	0	9. 98060	60	
$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$	43 52 43 44	$\begin{array}{c c} 16 & 8 \\ 16 & 16 \end{array}$	46635 46676	1 1	53365 53324	$48579 \\ 48624$	1 1	51421 51376	01944 01948	0	98056 98052	59 58	
3	43 36	16 24	46717	2	53283	48669	2	51331	01952	0	98048	57	
$\frac{4}{5}$	$\frac{43}{9} \frac{28}{43} \frac{20}{20}$	$\begin{array}{ c c c c c c }\hline 16 & 32 \\ \hline 2 & 16 & 40 \\ \hline \end{array}$	46758 9. 46800	$\frac{3}{3}$	53242 10, 53200	$\frac{48714}{9.48759}$	$\frac{3}{4}$	$\frac{51286}{10.51241}$	01956 10.01960	$-\frac{0}{0}$	$\frac{98044}{9.98040}$	$\frac{56}{55}$	
6	43 12	16 48	46841	4	53159	48804	4	51196	01964	0	98036	54	
7 8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$16 56 \\ 17 4$	46882 46923	5 5	53118 53077	48849 48894	5	51151 51106	01968 01971	0	98032 98029	53 52	
9	42 48	17 12	46964	6	53036	48939	7	51061	01975	1	98025	51	
10	9 42 40	2 17 20	9.47005	7	10. 52995	9. 48984	7	10.51016	10.01979	1	9.98021	50	
$\frac{11}{12}$	$\begin{array}{cccc} 42 & 32 \\ 42 & 24 \end{array}$	$\begin{array}{c c} 17 & 28 \\ 17 & 36 \end{array}$	47045 47086	8	52955 52914	49029 49073	8 9	50971 50927	$01983 \\ 01987$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	98017 98013	49 48	
13	42 16	17 44	47127	9	52873	49118	10	50882	01991	1	98009	47	
$\frac{14}{15}$	$\frac{42}{9} \frac{8}{42}$	$\frac{17\ 52}{2\ 18\ 0}$	$\frac{47168}{9.47209}$	$\frac{9}{10}$	$\frac{52832}{10.52791}$	49163 9. 49207	$\frac{10}{11}$	$\frac{50837}{10.50793}$	01995 10.01999	$\frac{1}{1}$	$\frac{98005}{9.98001}$	$\frac{46}{45}$	
16	41 52	18 8	47249	11	52751	49252	12	50748	02003	1	97997	44	
17 18	41 44 41 36	18 16 18 24	47290 47330	$\begin{array}{ c c }\hline 11\\12\\ \end{array}$	52710 52670	$49296 \\ 49341$	12	50704 50659	$02007 \\ 02011$	$\begin{array}{ c c }\hline 1\\1\end{array}$	97993 97989	43 42	
19	41 28	18 32	47371	13	52629	49385	14	50615	02014	1	97986	41	
$\frac{20}{21}$	9 41 20 41 12	$\begin{bmatrix} 2 & 18 & 40 \\ 18 & 48 \end{bmatrix}$	$9.47411 \\ 47452$	13 14	10. 52589 52548	$9.49430 \\ 49474$	15 15	$10.50570 \\ 50526$	$10.02018 \\ 02022$	1 1	9. 97982 97978	40 39	
22	41 4	18 56	47492	15	52508	49519	16	50481	02022	1	97974	38	
23 24	40 56 40 48	$19 ext{ } 4 \\ 19 ext{ } 12$	47533 47573 _~	15 16	52467 52427	49563 49607	17 18	50437 50393	$02030 \\ 02034$	$\frac{2}{2}$	97970 97966	37 36	
$\frac{24}{25}$	9 40 40	2 19 20	9.47613	17	$\frac{52427}{10.52387}$	9. 49652	18	10. 50348	10. 02038	$\frac{2}{2}$	$\frac{97960}{9.97962}$	35	
26	40 32	19 28	47654	17	52346	49696	19	50304	02042	2	97958	34	
27 28	40 24 40 16	19 36 19 44	$47694 \\ 47734$	18 19	52306 52266	49740 49784	$\begin{vmatrix} 20 \\ 21 \end{vmatrix}$	50260 50216	$02046 \\ 02050$	2 2	97954 97950	33 32	
29	40 8	19 52	47774	19	52226	49828	_21	50172	02054	2	97946	31	
30 31	$\begin{bmatrix} 9 & 40 & 0 \\ 39 & 52 \end{bmatrix}$	$\begin{array}{ccc} 2 & 20 & 0 \\ 20 & 8 \end{array}$	9.47814 47854	$\begin{vmatrix} 20 \\ 21 \end{vmatrix}$	10. 52186 52146	$9.49872 \\ 49916$	22 23	$\begin{array}{c} 10.50128 \\ 50084 \end{array}$	$10.02058 \\ 02062$	$\frac{2}{2}$	9. 97942 97938	30 29	
32	39 44	20 16	47894	21	52106	49960	24	50040	02066	2	97934	28	
33 34	39 36 39 28	$\begin{array}{ccc} 20 & 24 \\ 20 & 32 \end{array}$	47934 47974	$\begin{array}{ c c }\hline 22\\23\\ \end{array}$	52066 52026	50004 50048	24 25	49996 49952	$02070 \\ 02074$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	97930 97926	27 26	
35	9 39 20	2 20 40	9.48014		10.51986	9, 50092	$\frac{26}{26}$	10.49908	10. 02078	$\frac{2}{2}$	9.97922	$\frac{20}{25}$	
36	39 12	20 48 20 56	48054	24	51946	50136	26	49864	02082	2	97918	24	
37 38	$\begin{array}{c c} 39 & 4 \\ 38 & 56 \end{array}$	20 30 21 4	48094 48133	$\begin{array}{ c c }\hline 25\\25\\ \end{array}$	51906 51867	$50180 \\ 50223$	27 28	49820 49777	02086 02090	3	97914 97910	23 22	
39	38 48	21 12	48173	26	51827	50267	29	49733	02094	3	97906	21	
40 41	9 38 40 38 32	$\begin{bmatrix} 2 & 21 & 20 \\ 21 & 28 \end{bmatrix}$	9. 48213 48252	$\begin{vmatrix} 27 \\ 27 \end{vmatrix}$	10. 51787 51748	9. 50311 50355	29 30	10. 49689 49645	$10.02098 \\ 02102$	3	9. 97902 97898	$\begin{array}{c} 20 \\ 19 \end{array}$	
42	38 24	21 36	48292	28	51708	50398	31	49602	02106	3	97894	18	
43 44	38 16 38 8	$\begin{array}{ccc} 21 & 44 \\ 21 & 52 \end{array}$	$\frac{48332}{48371}$	29 29	51668 51629	50442 50485	$\frac{32}{32}$	49558 49515	$02110 \\ 02114$	3 3	97890 97886	17 16	
45	9 38 0	2 22 0	9. 48411	30	10. 51589	9.50529	33	10.49471	10. 02118	3	9.97882	15	
46 47	37 52 37 44	$\begin{array}{ccc} 22 & 8 \\ 22 & 16 \end{array}$	48450 48490	31 31	51550 51510	50572 50616	34 35	49428 49384	$02122 \\ 02126$	3	97878 97874	14 13	
48	37 36	22 24	48529	32	51471	50659	35	49341	02130	3	97870	12	
49	37 28	22 32	48568	33	51432	50703	36	49297	02134	3	97866	11	
50 51	9 37 20 37 12	2 22 40 22 48	$9.48607 \\ 48647$	33 34	10. 51393 51353	$9.50746 \\ 50789$	37 37	10. 49254 49211	$10.02139 \\ 02143$	3	9. 97861 97857	10 9	
52	37 4	22 56	48686	35	51314	50833	38	49167	02147	3	97853	8	
53 5 4	36 56 36 48	$\begin{array}{c c}23 & 4\\23 & 12\end{array}$	48725 48764	35 36	$51275 \\ 51236$	50876 50919	39 40	49124 49081	$02151 \\ 02155$	4	97849 97845	7 6	
55	9 36 40	2 23 20	9.48803	37	10. 51197	9.50962	40	10.49038	10.02159	4	9.97841	5	
56 57	36 32 36 24	23 28 23 36	48842 48881	$\begin{vmatrix} 37 \\ 38 \end{vmatrix}$	51158 51119	51005 51048	$\begin{array}{c} 41 \\ 42 \end{array}$	$48995 \\ 48952$	$02163 \\ 02167$	4	97837 97833	4	
58	36 16	23 44	48920	39	51080	51092	43	48908	02171	4	97829	$egin{array}{c} 3 \\ 2 \\ 1 \end{array}$	
59 60	$\begin{array}{c c} 36 & 8 \\ 36 & 0 \\ \end{array}$	$\begin{array}{cccc} 23 & 52 \\ 24 & 0 \end{array}$	48959 48998	39 40	$51041 \\ 51002$	51135 51178	43 ′ 44	$48865 \\ 48822$	$02175 \\ 02179$	4	97825 97821	1 0	
М.		Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.		Tangent.	Cosecant.	Diff.	Sine.	M.	
107°			A		A	B	2 1111	B	C C	2111.	C C	720	

Seconds of time	1,	24	3,	4:	54	6.	7.
Prop. parts of cols. $\left\{egin{array}{c} A \\ B \\ C \end{array}\right\}$	5	10	15	20	25	30	35
	6	11	17	22	28	33	39
	0	1	1	2	2	3	3

P	Page 790] TABLE 44.												
				Log.		ngents, an	d Sec						
180		, ,	A		A	В		В	C		C	161°	
м.	Hour A.M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.	
0	9 36 0	2 24 0	9. 48998	0	10. 51002	9. 51178	0	10. 48822	10.02179	0	9.97821	60	
$\frac{1}{2}$	35 52 35 44	$egin{array}{cccc} 24 & 8 \ 24 & 16 \ \end{array}$	49037 49076	1 1	50963 50924	$51221 \\ 51264$	1 1	48779 48736	$02183 \\ 02188$	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	97817 97812	59 58	
3	35 36	24 24	49115	2	50885	51306	2	48694	02192	0	97808	57	
$\frac{4}{5}$	$\frac{35 28}{9 35 20}$	$\frac{24}{2} \frac{32}{44}$	49153 9, 49192	$\frac{3}{3}$	50847 10. 50808	$\frac{51349}{9.51392}$	$\frac{3}{3}$	$\frac{48651}{10.48608}$	02196 10.02200	$\frac{0}{0}$	$\frac{97804}{9.97800}$	$\frac{56}{55}$	
6	35 12	24 48	49231	4	50769	51435	4	48565	02204	0	97796	54	
7	35 4	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	49269	4 5	50731	51478	5	48522	02208	0	97792	53	
8	34 56 34 48	$egin{array}{cccc} 25 & 4 \ 25 & 12 \ \end{array}$	49308 49347	6	50692 50653	$51520 \\ 51563$	$\begin{array}{c c} 6 \\ 6 \end{array}$	48480 48437	$02212 \\ 02216$	1 1	97788 97784	52 51	
10	9 34 40	2 25 20	9.49385	6	10.50615	9.51606	7	10.48394	10.02221	1	9. 97779	50	
$\begin{array}{c} 11 \\ 12 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$49424 \\ 49462$	$\begin{bmatrix} 7 \\ 8 \end{bmatrix}$	50576 50538	51648 51691	8 8	48352 48309	$02225 \\ 02229$	1 1	97775	49	
13	34 16	$\frac{25}{25} \frac{30}{44}$	49500	8	50500	51734	9	48266	02223	1	97771 97767	48 47	
14	34 8	25 52	49539	9	50461	51776	10	48224	02237	1	97763	46	
15 16	$9 \ 34 \ 0 \ 33 \ 52$	$egin{array}{cccc} {\bf 2} & {\bf 26} & {\bf 0} \\ {\bf 26} & {\bf 8} \\ \end{array}$	9. 49577 49615	9	10. 50423 50385	9. 51819 51861	10 11	10. 48181 48139	$10.02241 \\ 02246$	1	9. 97759 97754	45 44	
17	33 44	26 16	49654	11	50346	51903	12	48097	02250	1	97750	43	
18 19	33 36 33 28	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$49692 \\ 49730$	11 12	50308 50270	$51946 \\ 51988$	13 13	48054 48012	$02254 \\ 02258$	1 1	97746 97742	42 41	
$\frac{10}{20}$	9 33 20	2 26 40	9, 49768	13	$\frac{50270}{10.50232}$	9. 52031	$\frac{13}{14}$	10. 47969	$\frac{02238}{10,02262}$	1	9. 97738	$\frac{41}{40}$	
21	33 12	26 48	49806	13	50194	52073	15	47927	02266	1	97734	39	
22 23	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c}26&56\\27&4\end{array}$	49844	14	50156 50118	52115 52157	$\begin{vmatrix} 15\\16 \end{vmatrix}$	47885 47843	$02271 \\ 02275$	$\frac{2}{2}$	97729 97725	38 37	
24	32 48	27 12	49920	15	50080	52200	17	47800	02279	2	97721	36	
25	9 32 40	2 27 20	9.49958	16	10.50042	9. 52242	17	10: 47758	10. 02283	2	9.97717	35	
$\frac{26}{27}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	27 28 27 36	49996 50034	16 17	50004 49966	$52284 \\ 52326$	18 19	47716 47674	$02287 \\ 02292$	2 2	97713 97708	34 33	
28	32 16	27 44	50072	18	49928	52368	20	47632	02296	2	97704	32	
$\frac{29}{30}$	$\frac{32}{9} \frac{8}{32} \frac{8}{0}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	50110 9. 50148	$\frac{18}{19}$	$\frac{49890}{10.49852}$	$\frac{52410}{9.52452}$	$\frac{20}{21}$	47590	$02300 \\ 10.02304$	$\frac{2}{2}$	$\frac{97700}{9,97696}$	31	
31	31 52	$\begin{bmatrix} 2 & 28 & 0 \\ 28 & 8 \end{bmatrix}$	50148	20	49815	52494	$\frac{21}{22}$	10. 47548 47506	02309	$\frac{2}{2}$	97691	30 29	
32	31 44	28 16	50223	20	49777	52536	22	47464	02313	2	97687	28	
33 34	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 28 & 24 \\ 28 & 32 \end{bmatrix}$	50261 50298	$\begin{vmatrix} 21\\21 \end{vmatrix}$	49739 49702	$52578 \\ 52620$	23 24	47422 47380	$02317 \\ 02321$	$\frac{2}{2}$	97683 97679	27 26	
35	9 31 20	2 28 40	9.50336	22	10.49664	9.52661	24	10.47339	10.02326	2	9.97674	25	
$\frac{36}{37}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	50374 50411	$\begin{array}{c c} 23 \\ 23 \end{array}$	49626 49589	$52703 \\ 52745$	$\begin{vmatrix} 25 \\ 26 \end{vmatrix}$	47297 47255	$02330 \\ 02334$	3 3	97670 97666	24 23	
38	30 56	29 4	50411	24	49551	52787	$\frac{20}{27}$	47213	02338	3	97662	22	
39	30 48	29 12	50486	25	49514	52829	27	47171	02343		97657	21	
40 41	$9 \ 30 \ 40 \ 30 \ 32$	2 29 20 29 28	$9.50523 \\ 50561$	$\begin{array}{ c c c }\hline 25 \\ 26 \\ \hline \end{array}$	10. 49477 49439	$9.52870 \\ 52912$	28 29	10. 47130 47088	$\begin{array}{c} 10.02347 \\ 02351 \end{array}$	3	9. 97653 97649	20 19	
42	30 24	29 36	50598	26	49402	52953	29	47047	02355	3	97645	18	
43 44	30 16 30 8	$\begin{vmatrix} 29 & 44 \\ 29 & 52 \end{vmatrix}$	50635 50673	$\begin{vmatrix} 27 \\ 28 \end{vmatrix}$	49365 49327	52995 53037	30	47005 46963	$02360 \\ 02364$	3 3	97640 97636	17 16	
45	9 30 0	$\frac{23 \ 32}{2 \ 30 \ 0}$	9, 50710	$\frac{28}{28}$	$\frac{49327}{10.49290}$	9. 53078	31	10, 46922	10. 02368	$\frac{3}{3}$	$\frac{97030}{9.97632}$	$\frac{10}{15}$	
46	29 52	30 8	50747	29	49253	53120	32	46880	02372	3	97628	14	
47 48	29 44 29 36	30 16 30 24	$50784 \\ 50821$	30	49216 49179	$53161 \\ 53202$	33 34	46839 46798	$02377 \\ 02381$	$\begin{vmatrix} 3 \\ 3 \end{vmatrix}$	97623 97619	13 12	
49	29 28	30 32	50858	31	49142	53244	34	46756	02385	3	97615	11	
50	9 29 20	2 30 40	9.50896	31	10. 49104	9. 53285	35	10. 46715	10.02390	4	9.97610	10	
$\begin{array}{ c c c } 51 \\ 52 \\ \end{array}$	$\begin{array}{cccc} 29 & 12 \\ 29 & 4 \end{array}$	30 48 30 56	50933 50970	32 33	49067 49030	53327 53368	36 36	$46673 \\ 46632$	$02394 \\ 02398$	4	97606 97602	9 8	
53	28 56	31 4	£1007	33	48993	53409	37	46591	02403	4	97597	7	
$\frac{54}{55}$	$\frac{28 \ 48}{9 \ 28 \ 40}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{51043}{9.51080}$	$\frac{34}{35}$	48957 10. 48920	53450 9, 53492	$\frac{38}{38}$	$\frac{46550}{10.46508}$	02407 10.02411	$\frac{4}{4}$	$\frac{97593}{9.97589}$	$\left -\frac{6}{5} \right $	
56	28 32	31 28	51117	35	48883	53533	39	46467	02411	4	97584	4	
57 58	28 24 28 16	31 36	51154	36	48846	53574	40	.46426	02420	4	97580 97576	$\frac{3}{2}$	
58 59	$\begin{array}{c c}28&16\\28&8\end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$51191 \\ 51227$	37 37	48809 48773	53615 53656	41 41	$46385 \\ 46344$	02424 02429	4	97576 97571	1	
60	28 0	32 0	51264	38	48736	53697	42	46303	02433	4	.97567	0	
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М,	
1080			A		A	В		В	C		С	710	
						0. 9.		E. C.					

Seconds of time	18	2*	3*	4*	5*	61	78
Prop. parts of cols. $\left\{ egin{matrix} A \\ B \\ C \end{array} \right.$	5	9	14	19	24	28	33
	5	10	16	21	26	31	37
	1	1	2	2	3	3	4

TABLE 44. [Page 791												
			1	Log.	,	gents, and	l Sec		_			
190			A		A	В		В	С			160°
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotanger.t.	Secant.	Diff.	Cosine.	М.
0	9 28 0	2 32 0	9.51264	0	10. 48736	9.53697	0	10. 46303	$10.02433 \\ 02437$	0	9. 97567 97563	60 59
$\frac{1}{2}$	$\begin{array}{cccc} 27 & 52 \\ 27 & 44 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	51301 51338	1 1	$48699 \\ 48662$	53738 53779	1 1	$46262 \\ 46221$	02442	ő	97558	58
3	27 36	32 24	51374	2	48626	53820	2	46180	02446	0	97554	57
4	27 28	32 32	51411	$\frac{2}{3}$	48589	$\frac{53861}{9,53902}$	$\frac{3}{3}$	46139 10. 46098	02450 10.02455	$\frac{0}{0}$	$\frac{97550}{9.97545}$	$\frac{56}{55}$
5 6	$9 \ 27 \ 20 \ 27 \ 12$	2 32 40 32 48	9. 51447 51484	4	10. 48553 48516	53943	4	46057	02459	ő	97541	54
7	27. 4	32 56	51520	4	48480	53984	5	46016	02464	1	97536	53
8 9	26 56 26 48	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	51557 51593	5	48443 48407	54025 54065	5	45975 45935	$02468 \\ 02472$	1 1	97532 97528	$ \begin{array}{c c} 52 \\ 51 \end{array} $
$\frac{9}{10}$	9 26 40	2 33 20	9, 51629	$\frac{6}{6}$	10. 48371	9.54106	$\frac{3}{7}$	10. 45894	$\frac{02172}{10.02477}$	1	9. 97523	50
11	$26 \ 32$	33 28	51666	7	48334	54147	7	45853	02481	1	97519	49
12	26 24	33 36	51702	7	48298	$54187 \\ 54228$	8 9	$45813 \\ 45772$	$02485 \\ 02490$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	97515 97510	48 47
13 14	$\begin{array}{ccc} 26 & 16 \\ 26 & 8 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	51738 51774	8.	48262 48226	54269	9	45731	02494	1	97506	46
15	9 26 0	2 34 0	9.51811	9	10. 48189	9.54309	10	10.45691	10.02499	1	9. 97501	45
16	25 52	34 8	51847	10	48153	54350	11 11	45650 45610	$02503 \\ 02508$	$\begin{array}{ c c }\hline 1\\1\end{array}$	$97497 \\ 97492$	44 43
17 18	$25 ext{ } 44$ $25 ext{ } 36$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	51883 51919	10	48117 48081	54390 54431	12	45569	$02508 \\ 02512$	1	97492	42
19	25 28	34 32	51955	11	48045	54471	13	45529	02516	1	97484	41
20	9 25 20	2 34 40	9.51991	12	10. 48009	9.54512		10. 45488	$10.02521 \\ 02525$	$\frac{1}{2}$	9. 97479 97475	40 39
$\begin{array}{c} 21 \\ 22 \end{array}$	$\begin{array}{ccc} 25 & 12 \\ 25 & 4 \end{array}$	$\begin{array}{c c} 34 & 48 \\ 34 & 56 \end{array}$	52027 52063	$\begin{vmatrix} 12 \\ 13 \end{vmatrix}$	47973 47937	54552 54593	14 15	45448 45407	$02525 \\ 02530$	$\frac{z}{2}$	97470	38
23	24 56	35 4	52099	14	47901	54633	15	45367	02534	2	97466	37
24	24 48	35 12	52135	14	47865	54673	16	45327	02539	2	97461	36
25 26	$9 \ 24 \ 40 \ 24 \ 32$	2 35 20 35 28	$9.52171 \\ 52207$	15 15	10. 47829 47793	$9.54714 \\ 54754$	17 17	$10.45286 \\ 45246$	$\begin{array}{c} 10.\ 02543 \\ 02547 \end{array}$	$\frac{2}{2}$	9. 97457 97453	35 34
27	24 24	35 36	52242	16	47758	54794	18	45206	02552	2	97448	33
28	24 16	35 44	52278	17	47722	54835	19	45165	02556	2	97444	32
$\frac{29}{30}$	$\frac{\cdot 24}{9} \frac{8}{24}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	52314 9. 52350	$\frac{17}{18}$	$\frac{47686}{10.47650}$	$\frac{54875}{9.54915}$	$\frac{19}{20}$	45125 10. 45085	$02561 \\ 10.02565$	$\frac{2}{2}$	$\frac{97439}{9.97435}$	$\frac{31}{30}$
31	23 52	36 8	52385	18	47615	54955	21	45045	02570	2	97430	29
32	23 44	36 16	52421	19	47579	54995	21	45005	02574	2	97426	28
33 34	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$52456 \\ 52492$	$\begin{vmatrix} 20 \\ 20 \end{vmatrix}$	47544 47508	55035 55075	22 23	44965 44925	$02579 \\ 02583$	3	97421 97417	27 26
35	9 23 20	2 36 40	9. 52527	$\frac{20}{21}$	10.47473	9.55115	$\frac{23}{23}$	10. 44885	10. 02588	3	9. 97412	25
36	23 12	36 48	52563	21	47437	55155	24	44845	02592	3	97408	24
37 38	$\begin{array}{ccc} 23 & 4 \\ 22 & 56 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$52598 \\ 52634$	$\begin{vmatrix} 22 \\ 23 \end{vmatrix}$	47402 47366	$55195 \\ 55235$	25 25	44805 44765	$02597 \\ 02601$	3	97403 97399	$\frac{23}{22}$
39	22 48	37 12	52669	23	47331	55275	26	44725	02606	3	_97394	21
40	9 22 40	2 37 20	9. 52705	24	10.47295	9.55315	27	10.44685	10.02610	3	9.97390	20
41 42	$\begin{array}{cccc} 22 & 32 \\ 22 & 24 \end{array}$	37 28 37 36	$52740 \\ 52775$	$\begin{array}{ c c }\hline 24\\ 25\\ \end{array}$	47260 47225	55355 55395	$\begin{array}{c} 27 \\ 28 \end{array}$	44645 44605	$02615 \\ 02619$	3	97385 97381	19 18
43	22 16	37 44	52811	26	47189	55434	29	44566	02619	3	97376	17
44	22 8	37 52	52846	26	47154	55474	29	44526	02628	3	97372	16
45 46	$\begin{array}{cccc} 9 & 22 & 0 \\ & 21 & 52 \end{array}$	$\begin{bmatrix} 2 & 38 & 0 \\ 38 & 8 \end{bmatrix}$	$\begin{array}{c} 9.52881 \\ 52916 \end{array}$	27 27	10. 47119	9.55514	30 31	10. 44486 44446	10.02633 02637	3	9. 97367	15 14
47	21 44	38 16	52951	28	47084 47049	55554 55593	31	44407	02637	3	97363 97358	13
48	21 36	38 24	52986	29	47014	55633	32	44367	02647	4	97353	12
$\frac{49}{50}$	$\frac{21}{9} \frac{28}{21}$	$\frac{38\ 32}{2\ 38\ 40}$	53021	$\frac{29}{30}$	46979	55673	33	44327	02651	4	97349	11
51	9 21 20 21 12	38 48	$9.53056 \\ 53092$	30	10. 46944 46908	$\begin{array}{c} 9.55712 \\ 55752 \end{array}$	33 34	10. 44288 44248	$10.02656 \\ 02660$	4	9. 97344 97340	10 9
52	21 4	38 56	53126	31	46874	55791	35	44209	02665	4	97335	8
53 54	20 56 20 48	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	53161 53196	$\begin{vmatrix} 32 \\ 32 \end{vmatrix}$	46839 46804	55831 55870	35 36	44169 44130	$02669 \\ 02674$	4 4	97331 97326	7 6
55	9 20 40	2 39 20	9. 53231	$\frac{32}{33}$	10.46769	9.55910	$\frac{30}{37}$	10. 44090	$\frac{02674}{10.02678}$	$\frac{4}{4}$	$\frac{97320}{9.97322}$	$\frac{6}{5}$
56	20 32	39 28	53266	33	46734	55949	37	44051	02683	4	97317	4
57 58	$\begin{array}{ccc} 20 & 24 \\ 20 & 16 \end{array}$	39 36 39 44	53301	34	46699	55989	38	44011	02688	4	97312	3
58 59	20 16	39 52	53336 53370	34 35	46664 46630	56028 56067	39	43972 43933	$02692 \\ 02697$	4 4	97308 97303	$\begin{array}{c c} 2 \\ 1 \end{array}$
60	20 0	40 0	53405	36	46595	56107	40	43893	02701	4	97299	ō
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
1090			A	1	A	В		В	С	1	C	700
-												

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4621,

Seconds of time	1s	2s	g _a	44	ð ^s	Gs	70
Prop. parts of cols. ${A \atop B}$	4	9	13	18	22	27	31
	5	10	15	20	25	30	35
	1	1	2	2	3	3	4

Page 792] TABLE 44.												
				Log.	Sines, Tar	igents, and	l Sec	ants.				
200			A		A	В		В	С		C	1590
м.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
0	9 20 0	2 40 0	9.53405	0	10. 46595	9. 56107	0	10. 43893	10. 02701	0	9. 97299	60
$\frac{1}{2}$	19 52 19 44	40 8 40 16	53440 53475	1	$46560 \\ 46525$	$56146 \\ 56185$	1	43854 43815	$02706 \\ 02711$	0	97294 97289	59 58
3 4	$\begin{array}{cccc} 19 & 36 \\ 19 & 28 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	53509 53544	$\begin{vmatrix} 2\\2 \end{vmatrix}$	46491 46456	$56224 \\ 56264$	$\frac{2}{3}$	43776 43736	$02715 \\ 02720$	0	$97285 \\ 97280$	57 56
5	9 19 20	2 40 40	9.53578	3	10.46422	9.56303	$\frac{3}{3}$	10.43697	10.02724	0	9.97276	55
$\frac{6}{7}$	19 12 19 4	40 48 40 56	53613 53647	3 4	46387 46353	56342 56381	4	43658 43619	$02729 \\ 02734$	0	97271 97266	54 53
8	18 56	41 4	53682	5	46318	56420	5	43580	02738	1	97262	52
$\frac{9}{10}$	$\frac{18}{9} \frac{48}{18} \frac{1}{40}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{53716}{9.53751}$	$\frac{5}{6}$	$\frac{46284}{10.46249}$	56459 9. 56498	$\frac{6}{6}$	$\frac{43541}{10.43502}$	$\frac{02743}{10.02748}$	$\frac{1}{1}$	$\frac{97257}{9,97252}$	$\frac{51}{50}$
11	18 32	41 28	53785	6	46215	56537	7	43463	02752	1	97248	49
12 13	18 24 18 16	41 36 41 44	53819 53854	7 7	46181 46146	$56576 \\ 56615$	8	43424 43385	$02757 \\ 02762$	1	97243 97238	48 47
14	18 8	41 52	53888	8	46112	56654	9	43346	02766	1	97234	46
15 16	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix}2&42&0\\42&8\end{bmatrix}$	$9.53922 \\ 53957$	8 9	10. 46078 46043	$9.56693 \\ 56732$	10 10	10. 43307 43268	$\begin{array}{c} 10.02771 \\ 02776 \end{array}$	1	9.97229 97224	45 44
17 18	17 44 17 36	$\begin{array}{cccc} 42 & 16 \\ 42 & 24 \end{array}$	53991 54025	10 10	46009 45975	$56771 \\ 56810$	$\begin{array}{c} 11 \\ 12 \end{array}$	43229	02780	1 1	97220	43
19	17 28	42 32	54059	11	45941	56849	12	43190 43151	$02785 \\ 02790$	1	97215 97210	42 41
$\begin{array}{c} 20 \\ 21 \end{array}$	9 17 20 17 12	2 42 40 42 48	9. 54093 54127	$\begin{array}{c} 11 \\ 12 \end{array}$	10. 45907 45873	$9.56887 \\ 56926$	13	10. 43113 43074	10.02794	2	9.97206	40
22	17 4	42 56	54161	12	45839	56965	13 14	43035	$02799 \\ 02804$	2 2	97201 97196	39 38
$\begin{bmatrix} 23 \\ 24 \end{bmatrix}$	16 56 16 48	$\begin{array}{cccc} 43 & 4 \\ 43 & 12 \end{array}$	54195 54229	13	45805 45771	$57004 \\ 57042$	15 15	42996 42958	$02808 \\ 02813$	$\frac{2}{2}$	97192 97187	37 36
25	9 16 40	2 43 20	9.54263	14	10. 45737	9.57081	16	10. 42919	10.02818	2	9.97182	35
$\begin{array}{c c} 26 \\ 27 \end{array}$	$\begin{array}{c c} 16 & 32 \\ 16 & 24 \end{array}$	43 28 43 36	54297 54331	15 15	45703 45669	$57120 \\ 57158$	17 17	42880 42842	02822 02827	2 2	97178 97173	34 33
28	16 16	43 44	54365	16	45635	57197	18	42803	02832	2	97168	32
$\frac{29}{30}$	$\frac{16}{9} \frac{8}{16} \frac{1}{0}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	54399 9. 54433	$\frac{16}{17}$	$\frac{45601}{10.45567}$	$\frac{57235}{9,57274}$	$\frac{19}{19}$	$\frac{42765}{10.42726}$	02837 10.02841	$\frac{2}{2}$	$\frac{97163}{9.97159}$	$\frac{31}{30}$
31	15 52	44 8	54466	17	45534	57312	20	42688	02846	2	97154	29
32 33	15 44 15 36	44 16 44 24	54500 54534	18 19	45500 45466	57351 57389	$\begin{array}{c c} 21 \\ 21 \end{array}$	42649 42611	$02851 \\ 02855$	3	97149 97145	28 27
34	15 28	44 32	54567	19	45433	57428	22	42572	02860	3	97140	26
35 36	9 15 20 15 12	2 44 40 44 48	9. 54601 54635	$\begin{vmatrix} 20 \\ 20 \end{vmatrix}$	10. 45399 45365	9. 57466 57504	22 23	10. 42534 42496	$\begin{array}{c} 10.02865 \\ 02870 \end{array}$	3	9. 97135 97130	$\begin{array}{c} 25 \\ 24 \end{array}$
37	15 4	44 56	54668	21	45332	57543	24	42457	02874	3	97126	23
38 39	14 56 14 48	$\begin{array}{cc} 45 & 4 \\ 45 & 12 \end{array}$	54702 54735	$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	45298 45265	57581 57619	24 25	42419 42381	02879 02884	3 3	97121 97116	22 21
40 41	9 14 40 14 32	2 45 20 45 28	9. 54769 54802	23 23	10. 45231 45198	9. 57658 57696	$\begin{array}{c} 26 \\ 26 \end{array}$	10. 42342 42304	10. 02889	3	9.97111	20
42	14 32	45 36	54836	24	45164	57734	27	42304	02893 02898	3	97107 97102	19 18
43 44	14 16 14 8	$\begin{array}{cccc} 45 & 44 \\ 45 & 52 \end{array}$	54869 54903	24 25	45131 45097	57772 57810	28 28	42228 42190	02903 02908	3	97097 97092	17 16
45	9 14 0	2 46 0	9.54936	25	10.45064	9.57849	29	10. 42151	10. 02913	4	9.97087	15
46 47	13 52 13 44	46 8 46 16	54969 55003	26 26	45031 44997	57887 57925	30 30	42113 42075	$02917 \\ 02922$	4	97083 97078	14 13
48	13 36	46 24	55036	27	44964	57963	31	42037	02927	4	97073	12
49 50	13 28 9 13 20	46 32 2 46 40	$\frac{55069}{9,55102}$	$\frac{28}{28}$	44931 10. 44898	$\frac{58001}{9.58039}$	$\frac{31}{32}$	41999 10. 41961	$\frac{02932}{10.02937}$	$\left \frac{4}{4} \right $	$\frac{97068}{9,97063}$	$\frac{11}{10}$
51	13 12	46 48	55136	29	44864	58077	33	41923	02941	4	97059	9
52 53	13 4 12 56	$\begin{array}{ccc} 46 & 56 \\ 47 & 4 \end{array}$	55169 55202	29 30	44831 44798	58115 58153	33	41885 41847	$02946 \\ 02951$	4	97054 97049	8 7
54	12 48	47 12	55235	30	44765	58191	35	41809	02956	4	97044	6.
55 56	9 12 40 12 32	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	9. 55268 55301	31 32	10. 44732 44699	$9.58229 \\ 58267$	35 36	10. 41771 41733	$10.02961 \\ 02965$	4	9. 97039 970 3 5	$\frac{5}{4}$
57 58	$\begin{array}{c cccc} 12 & 24 \\ 12 & 16 \end{array}$	47 36 47 44	55334 55367	32 33	44666 44633	58304 58342	37 37	41696 41658	$02970 \\ 02975$	4 5	97030 97025	3 2
59	12 8	47 52	55400	33	44600	58380	38	41620	02980	5	97020	1
60	12 0	48 0	55433	34	44567	58418	39	41582	02985	5	97015	0
	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
110°			A		A	В		В	С		С	69°

Seconds of time	1•	20	31	4.	5.	6,	7.
Prop. parts of cols. $\left\{ egin{matrix} A \\ B \\ C \end{array} \right.$	4	8	13	17	21	25	30
	5	10	14	19	24	29	34
	1	1	2	2	3	4	4

					TAI	3LE 44.					Page 7	93
]	Log.	Sines, Tar	gents, and	l Sec					
210			Α		A	В		В	c		c	158°
М.	Hour A.M.	Hour P.M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	9 12 0	2 48 0	9.55433	0	10. 44567	9. 58418	0	10. 41582	10. 02985 02990	0	9. 97015 97010	60
$\frac{1}{2}$	11 52 11 44	48 8 48 16	55466 55499	1	44534 44501	58455 58493	1 1	41545 41507	02990	0	97010	59 58
3	11 36	48 24	55532	2	44468	58531	2	41469	02999	0	97001	57
<u>4</u> 5	$\frac{11}{9} \frac{28}{11}$	$\frac{48\ 32}{2\ 48\ 40}$	55564 9. 55597	$\frac{2}{3}$	44436 10. 44403	58569 9.58606	$\frac{2}{3}$	41431 10, 41394	03004 10. 03009	$\frac{0}{0}$	$\frac{96996}{9,96991}$	$\frac{56}{55}$
6	11 12	48 48	55630	3	44370	58644	4	41356	03014	0	96986	54
7 8	$\begin{array}{ccc} 11 & 4 \\ 10 & 56 \end{array}$	$\begin{array}{ccc} 48 & 56 \\ 49 & 4 \end{array}$	55663 55695	4 4	44337 44305	58681 58719	5	41319 41281	$03019 \\ 03024$	$\frac{1}{1}$	96981 96976	53 52
9	10 36	$\begin{array}{ccc} 49 & 4 \\ 49 & 12 \end{array}$	55728	5	44272	58757	6	41243	03029	1	96971	51
10	9 10 40	2 49 20	9.55761	5	10. 44239	9. 58794	6	10.41206	$10.03034 \\ 03038$	1	9. 96966 96962	50
$\begin{array}{c c} 11 \\ 12 \end{array}$	$10 \ 32 \ 10 \ 24$	49 28 49 36	55793 55826	6	44207 44174	58832 58869	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	41168 41131	03043	1	96957	49 48
13	10 16	49 44	55858	7	44142	58907	8	41093	03048	1	96952	47
$\frac{14}{15}$	$\frac{10}{9} \frac{8}{10}$	$\frac{49\ 52}{2\ 50\ 0}$	55891 9, 55923	$\frac{7}{8}$	$\frac{44109}{10.44077}$	$\frac{58944}{9.58981}$	$\frac{9}{9}$	41056 10.41019	03053 10.03058	$\frac{1}{1}$	96947 9.96942	$\frac{46}{45}$
16	9 52	50 8	55956	9	44044	59019	10	40981	03063	1	96937	44
17 18	9 44 9 36	50 16 50 24	$55988 \\ 56021$	9 10	44012 43979	59056 59094	10 11	40944 40906	03068 03073	1 1	96932 96927	43 42
19	9 28	50 32	56053	10	43947	59131	12	40869	03078	2	96922	41
20	9 9 20	2 50 40	9.56085	.11	10. 43915	9.59168	12	10.40832	10.03083	2	9.96917	40
$\frac{21}{22}$	$\begin{array}{cccc} 9 & 12 \\ 9 & 4 \end{array}$	50 48 50 56	56118 56150	$\begin{array}{c c} 11 \\ 12 \end{array}$	43882 43850	59205 59243	13	40795 40757	03088 03093	2 2	96912 96907	39 38
23	8 56	51 4	56182	12	43818	59280	14	40720	03097	2	96903	37
$\frac{24}{25}$	9 8 40	51 12 2 51 20	56215 9. 56247	$\frac{13}{13}$	43785 10. 43753	59317 9, 59354	$\frac{15}{15}$	40683 10. 40646	03102 10. 03107	$\frac{2}{2}$	$\frac{96898}{9,96893}$	$\frac{36}{35}$
26	8 32	51 28	56279	14	43721	59391	16	40609	03112	2	96888	34
27 28	8 24 8 16	51 36	56311 56343	14 15	43689 43657	59429 59466	17 17	40571 40534	$03117 \\ 03122$	2 2	96883 96878	33 32
29	$egin{array}{cccccccccccccccccccccccccccccccccccc$	51 44 51 52	56375	16	43625	59503	18	40497	03127	2	96873	31
30	9 8 0	2 52 0	9.56408	16	10. 43592	9.59540	19	10. 40460	10.03132	2	9.96868	30
$\frac{31}{32}$	$egin{array}{ccc} 7 & 52 \ 7 & 44 \end{array}$	$\begin{array}{ccc} 52 & 8 \\ 52 & 16 \end{array}$	56440 56472	17 17	43560 43528	59577 59614	19 20	40423 40386	$03137 \\ 03142$	3	96863 96858	29 28
33	7 36	52 24	56504	18	43496	59651	20	40349	03147	3	96853	27
$\frac{34}{35}$	$\frac{7\ 28}{9\ 7\ 20}$	$\frac{52\ 32}{2\ 52\ 40}$	56536 9.56568	$\frac{18}{19}$	43434 10, 43432	$\frac{59688}{9.59725}$	$\frac{21}{22}$	$\frac{40312}{10.40275}$	03152 10.03157	$\frac{3}{3}$	96848 9.96843	$\frac{26}{25}$
36	7 12	52 48	56599	19	43401	59762	22	40238	03162	3	96838	24
37	7 4	52 56	56631	20	43369	59799	23 23	40201 40165	$03167 \\ 03172$	3 3	96833 96828	23 22
38 39	6 56 6 48	53 4 53 12	56663 56695	$\begin{array}{c c} 20 \\ 21 \end{array}$	43337 43305	59835 59872	24	40103	03177	3	96823	21
40	9 6 40	2 53 20	9.56727	21	10. 43273	9.59909	25	10.40091	10.03182	3	9,96818	20
41 42	6 32 6 24	53 28 53 36	56759 56790	22 22	43241 43210	59946 59983	25 26	40054 40017	$03187 \\ 03192$	3 3	96813 96808	19 18
43	6 16	53 44	56822	23	43178	60019	27	39981	03197	4	96803	17
$\frac{44}{45}$	$\frac{6}{9} \frac{8}{6} \frac{8}{0}$	$\frac{53\ 52}{2\ 54\ 0}$	56854 9. 56886	$\frac{24}{24}$	43146 10. 43114	9.60093	$\frac{27}{28}$	39944 10. 39907	$\frac{03202}{10,03207}$	4	$\frac{96798}{9,96793}$	$\frac{16}{15}$
46	5 52	54 8	56917	25	43083	60130	28	39870	03212	4	96788	14
47 48	5 44 5 26	54 16 54 24	56949 56980	25 26	43051 43020	60166 60203	29 30	39834 39797	$03217 \\ 03222$	4	96783	13 12
49	5 36 5 28	54 24	57012	26	42988	60240	30	39760	03228	4	96778 96772	11
50	9 5 20	2 54 40	9.57044	27	10, 42956	9.60276	31	10.39724	10. 03233	4	9.96767	10
$\begin{array}{c} 51 \\ 52 \end{array}$	$\begin{array}{ccc} 5 & 12 \\ 5 & 4 \end{array}$	54 48 54 56	57075 57107	27 28	42925 42893	60313 60349	$\begin{vmatrix} 31 \\ 32 \end{vmatrix}$	39687 39651	$03238 \\ 03243$	4	96762 96757	9 8
53	4 56	55 4	57138	28	42862	60386	33	39614	03248	4	96752	7
54 55	9 4 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	57169 9. 57201	$\frac{29}{29}$	$\frac{42831}{10.42799}$	9. 60422	$\frac{33}{34}$	39578 10. 39541	$\frac{03253}{10.03258}$	5	$\frac{96747}{9.96742}$	$\frac{6}{5}$
56	4 32	55 28	57232	30	42768	60495	35	39505	03263	5	96737	4
57 58	4 24 4 16	55 36 55 44	57264 57295	30	42736 42705	60532 60568	35 36	39468 39432	$03268 \\ 03273$	5 5	96732 96727	$\frac{3}{2}$
59	4 8	55 52	57326	32	42674	60605	36	39395	03278	5	96722	1
60	4 0	56 0	57358	32	42642	60641	37	39359	03283	5	96717	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
1110			A		A	В		В	C		C	68°
											-	

Second of time	11	28	3s	4.	5.	68	7.
Prop. parts of cols. $\left\{egin{array}{l} A \\ B \\ C \end{array}\right\}$	4	8	12	16	20	24	28
	5	9	14	19	23	28	32
	1	1	2	2	3	4	4

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TABLE 44.

Log. Sines, Tangents, and Secants.

220			A	Log.	A	gents, and B	i sec	B	C		\mathbf{c}	1570
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
0	9 4 0	2 56 0	9. 57358	0	10. 42642	9. 60641	0	10. 39359	10. 03283	0	9.96717	60
$\frac{1}{2}$	$\begin{array}{c} 3 \ 52 \\ 3 \ 44 \end{array}$	$\begin{array}{ccc} 56 & 8 \\ 56 & 16 \end{array}$	$57389 \\ 57420$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	$\begin{array}{c} 42611 \\ 42580 \end{array}$	60677	$\begin{array}{c c} 1 \\ 1 \end{array}$	39323 39286	03289	0	96711	59
3	3 36	$\frac{56}{56} \frac{16}{24}$	57451	$\frac{1}{2}$	42549	60714 60750	$\frac{1}{2}$	39250	$03294 \\ 03299$	$\begin{vmatrix} 0 \\ 0 \end{vmatrix}$	96706 96701	58 57
4	3 28	56 32	57482	2	42518	60786	2	39214	03304	Ŏ	96696	56
5	9 3 20	2 56 40	9.57514	3	10.42486	9.60823	3	10. 39177	10.03309	0	9.96691	55
6 7	$\begin{array}{cc} 3 & 12 \\ 3 & 4 \end{array}$	56 48 56 56	57545 57576	3 4	$42455 \\ 42424$	$60859 \\ 60895$	4 4	39141 39105	$03314 \\ 03319$	1 1	96686 96681	54 53
8	$\begin{array}{c} 3 & 4 \\ 2 & 56 \end{array}$	57 4	57607	4	42393	60931	5	39069	03324	i	96676	52
9	2 48	57 12	57638	5	42362	60967	5	39033	03330	1	96670	51
10	9 2 40	2 57 20	9.57669	5	10. 42331	9.61004	6	10.38996	10.03335	1	9. 96665	50
$\begin{array}{c} 11 \\ 12 \end{array}$	$\begin{array}{ccc} 2 & 32 \\ 2 & 24 \end{array}$	57 28 57 36	57700 57731	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	42300 42269	$61040 \\ 61076$	7 7	38960 38924	$03340 \\ 03345$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	96660 96655	49 48
13	$\frac{5}{2} \frac{24}{16}$	57 44	57762	7	42238	61112	8	38888	03350	1	96650	47
14	2 8	57 52	57793	7	42207	61148	8	38852	03355	1	96645	46
15	$\begin{array}{ccc} 9 & 2 & 0 \\ & 1 & 52 \end{array}$	2 58 0	9. 57824	8	10. 42176	9.61184	9	10.38816	10. 03360	1	9. 96640	45
16 17	$\frac{1}{1} \frac{32}{44}$	58 8 58 16	$57855 \\ 57885$	8 9	42145 42115	$61220 \\ 61256$	$\begin{array}{c c} 10 \\ 10 \end{array}$	38780 38744	$03366 \\ 03371$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	96634 96629	44 43
18	1 36	58 24	57916	9	42084	61292	11	38708	03376	2	96624	42
19	1 28	58 32	57947	10	42053	61328	11	38672	03381	2	96619	41
20 21	$9 1 20 \\ 1 12$	2 58 40 58 48	$9.57978 \\ 58008$	10 11	10. 42022 41992	9.61364 61400	12 13	10. 38636	10. 03386	$\frac{2}{2}$	9. 96614 96608	40 39
22	1 12	58 56	58039	11	41961	61436	13	38600 38564	03392 03397	$\begin{vmatrix} 2\\2 \end{vmatrix}$	96603	38
23	0 56	59 4	58070	12	41930	61472	14	38528	03402	2	96598	37
24	0 48	59 12	58101	12	41899	61508	14	38492	03407	2	96593	36
25 26	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 59 20 59 28	$9.58131 \\ 58162$	13 13	$10.41869 \\ 41838$	9. 61544 61579	15 15	$10.38456\\38421$	$10.03412 \\ 03418$	$\frac{2}{2}$	9.96588	35 34
27	$0.32 \\ 0.24$	59 36	58192	14	41808	61615	16	38385	03423	$\frac{1}{2}$	96582 96577	33
28	0 16	59 44	58223	14	41777	61651	17	38349	03428	2	96572	32
29	0 8	59 52	58253	15	41747	61687	17	38313	03433	3	96567	31
30 31	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 3 & 0 & 0 \\ 0 & 8 \end{bmatrix}$	$9.58284 \\ 58314$	15 16	10. 41716 41686	$\begin{array}{c} 9.61722 \\ 61758 \end{array}$	18 18	10. 38278 38242	$10.03438. \\ 03444$	3	9. 96562 96556	30 29
32	59 44	0 16	58345	16	41655	61794	19	38206	03449	3	96551	28
33	59 36	0 24	58375	17	41625	61830	20	38170	03454	3	96546	27
$\frac{34}{35}$	59 28 8 59 20	$\begin{array}{c c} 0 & 32 \\ \hline 3 & 0 & 40 \\ \end{array}$	58406	17	41594	61865	20	38135	03459	$\frac{3}{2}$	96541	26
36	59 12	3 0 40 0 48	9. 58436 58467	18 18	10. 41564 41533	$9.61901 \\ 61936$	$\begin{array}{c c} 21 \\ 21 \end{array}$	10. 38099 38064	10. 03465 03470	3 3	9. 96535 96530	$\frac{25}{24}$
37	59 4	0 56	58497	19	41503	61972	22	38028	03475	3	96525	23
38 39	58 56	1 4	58527	19	41473	62008	23	37992-	03480	3	96520	22
40	58 48 8 58 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	58557 9.58588	$\frac{20}{20}$	$\frac{41443}{10.41412}$	62043 9.62079	$\frac{23}{24}$	$\frac{37957}{10.37921}$	03486 10. 03491	$\frac{3}{3}$	96514	$\frac{21}{20}$
41	58 32	1 28	58618	21	41382	62114	24	37886	03496	4	96504	19
42	58 24	1 36	58648	_21	41352	62150	25	37850	03502	4	96498	18
43 44	58 16 58 8	$\begin{array}{c}1\ 44\\1\ 52\end{array}$	58678 58709	$\begin{array}{c c} 22 \\ 22 \end{array}$	41322 41291	$62185 \\ 62221$	26 26	37815 37779	$03507 \\ 03512$	4	96493 96488	17- 16
45	8 58 0	$\frac{1}{3} \frac{32}{2} \frac{0}{0}$	9.58739	$\frac{22}{23}$	10.41261	9. 62256	$\frac{20}{27}$	10. 37744	10. 03517	$\frac{4}{4}$	9. 96483	15
46	57 52	2 8	58769	23	41231	62292	27	37708	03523	4	96477	14
47	57 44	2 16	58799	24	41201	62327	28	37673	03528	4	96472	13
48 49	57 36 57 28	$\begin{array}{ccc} 2 & 24 \\ 2 & 32 \end{array}$	58829 58859	$\begin{array}{ c c }\hline 24\\ 25\\ \end{array}$	41171 41141	$62362 \\ 62398$	29 29	37638 37602	03533 03539	4 4	96467 96461	12 11
50	8 57 20	3 2 40	9.58889	$\frac{25}{25}$	10. 41111	9. 62433	30	10. 37567	10. 03544	4	9. 96456	10
51	57 12	2 48	58919	26	41081	62468	30	37532	03549	4	96451	9
52 53	57 4 56 56	$\begin{array}{ccc} 2 & 56 \\ 3 & 4 \end{array}$	58949 58979	26 27	41051 41021	$62504 \\ 62539$	31	37496	$03555 \\ 03560$	5	96445 96440	8 7
54	56 48	$\begin{bmatrix} 3 & 4 \\ 3 & 12 \end{bmatrix}$	59009	27	40991	62574	32 32	$37461 \\ 37426$	03565	5 5	96435	6
55	8 56 40	3 3 20	9.59039	28	10.40961	9. 62609	33	10.37391	10. 03571	5	9.96429	5
56	56 32	3 28	59069	28	40931	62645	33	37355	03576	5	96424	4
57 58	56 24 56 16	3 36 3 44	59098 59128	29 29	40902 40872	$62680 \\ 62715$	34 35	37320 37285	$03581 \\ 03587$	5 5	96419 96413	$\frac{3}{2}$
5 9	56 8	3 52	59158	30	40842	62750	35	37250	03592	5	96408	1
60	56 0	4 0	59188	31	40812	62785	36	37215	03597	5	96403	0
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
1120			A		A	В		В	C		C	670
		-										

Seconds of time	1s	25	3s	48	ðs	68	7*
Prop. parts of cols. $\left\{ egin{matrix} A \\ B \\ C \end{array} \right.$	4	8	11	15	19	23	27
	4	9	13	18	22	27	31
	1	1	2	3	3	4	5

					TAI	3LE 44.					Page 7	95
			3	Log.	Sines, Tar	0 ,	l Sec					
230			A		A	В		В	<u> </u>		C	156°
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	8 56 0	3 4 0	9.59188	0	10. 40812	9.62785	0	10. 37215	10. 03597	0	9.96403	60
1	55 52	4 8	59218	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	40782 40753	$62820 \\ 62855$	1 1	$37180 \\ 37145$	03603 03608	0	96397 96392	59 58
$\frac{2}{3}$	55 44 55 36	$\begin{array}{c c} 4 & 16 \\ 4 & 24 \end{array}$	$59247 \\ 59277$	1	40733	62890	$\frac{1}{2}$	37110	03613	ő	96387	57
4	55 28	4 32	59307	2	40693	62926	2	37074	03619	0	96381	56
5 6	8 55 20 55 12	$\begin{bmatrix} 3 & 4 & 40 \\ 4 & 48 \end{bmatrix}$	9.59336 59366	2 3	10. 40664 40634	$9.62961 \\ 62996$	3	10. 37039 37004	$10.03624 \\ 03630$	0	9.96376 96370	55 54
7	55 - 4	4 56	59396	3	40604	63031	4	36969	03635	1	96365	53
8	54 56 54 48	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	59425 59455	4 4	40575 40545	63066 63101	5	36934 36899	03640 03646_	1 1	96360 96354	52 51
$\frac{3}{10}$	8 54 40	3 5 20	9, 59484	$\frac{1}{5}$	$\frac{10045}{10.40516}$	9, 63135	$\frac{-6}{6}$	$\frac{36865}{10.36865}$	10. 03651	1	$\frac{9.96349}{9.96349}$	50
11	54 32	5 28	59514	5	40486	63170	6	36830	03657	1	96343	49
12 13	54 24 54 16	5 36 5 44	59543 59573	6.	40457 40427	$63205 \\ 63240$	7 7	36795 36760	$03662 \\ 03667$	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	96338 96333	48 47
14	54 8	$5\overline{52}$	59602	7	40398	63275	8	36725	03673	1	96327	46
15	8 54 0	3 6 0	9.59632	7	10. 40368	9.63310	9	10. 36690	10.03678	1	9,96322	45
$\frac{16}{17}$	53 52 53 44	$\begin{array}{ccc} 6 & 8 \\ 6 & 16 \end{array}$	59661 59690	8	40339 40310	63345 63379	9	36655 36621	03684 03689	$\begin{vmatrix} 1\\2 \end{vmatrix}$	96316 96311	44 43
18	53 36	6 24	59720	9-	40280	63414	10	36586	03695	2	96305	42
$\frac{19}{20}$	53 28 8 53 20	$\begin{array}{c c} 6 & 32 \\ \hline 3 & 6 & 40 \end{array}$	$\frac{59749}{9.59778}$	$\frac{9}{10}$	$\frac{40251}{10.40222}$	$\frac{63449}{9.63484}$	$\frac{11}{12}$	36551 10. 36516	03700 10. 03706	$\frac{2}{2}$	96300 9.96294	$\frac{41}{40}$
21	53 12	6 48	59808	10	40192	63519	12	36481	03711	2	96289	39
22	53 4	6 56	59837	11	40163	63553	13	36447	03716	2	96284	38
25 24	52 56 52 48	$\begin{array}{ccc} 7 & 4 \\ 7 & 12 \end{array}$	59866 a 59895 .	$\frac{11}{12}$	40134 40105	$63588 \\ 63623$	$\begin{vmatrix} 13 \\ 14 \end{vmatrix}$	36412 36377	$03722 \\ 03727$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	96278 96273	37 36
25	8 52 40	3 7 20	9.59924	12	10.40076	9.63657	14	10. 36343	10.03733	2	9.96267	35
26 27	52 32 52 24	7 28 7 36	59954	13 13	40046 40017	63692	15	36308	03738	$\frac{2}{2}$	96262	34
28	52 16	7 44	59983 60012	14	39988	$63726 \\ 63761$	$\begin{vmatrix} 16 \\ 16 \end{vmatrix}$	36274 36239	$03744 \\ 03749$	3	96256 96251	32
29	52 8	7 52	60041	14	39959	63796	17	36204	03755	3	96245	31
30 31	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	3 8 0 8 8	9.60070 60099	15 15	10.39930 39901	9.63830 63865	17 18	10. 36170 36135	$10.03760 \\ 03766$	3 3	$9.96240 \\96234$	30 29
32	51 44	8 16	60128	15	39872	63899	18	36101	03771	3	96229	28
33 34	51 36 51 28	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	60157 60186	16 16	39843 39814	63934 63968	$\frac{19}{20}$	36066 36032	$03777 \\ 03782$	3 3	96223	27
35	8 51 20	3 8 40	9,60215	$\frac{10}{17}$	$\frac{39814}{10.39785}$	9, 64003	$\frac{20}{20}$	10. 35997	10. 03788	$\frac{3}{3}$	$\frac{96218}{9.96212}$	$\frac{26}{25}$
36	51 12	8 48	60244	17	39756	64037	21	35963	03793	3	96207	24
.37 38	-51 - 4 $50 - 56$	8 56 . 9 4	60273_ 60302	18 18	39727 39698	$64072 \\ 64106$	$\frac{21}{22}$	35928 35894	03799. 03804	3 3	96201 96196	23 22
39	50 48	9 12	60331	19	39669	64140	22	35860	03810	4	96190	21
40	8 50 40	3 9 20	9.60359	19	10. 39641	9. 64175	23	10. 35825	10.03815	4	9.96185	20
41 42	50 32 50 24	$\begin{array}{ccc} 9 & 28 & 1 \\ 9 & 36 & 1 \end{array}$	60388 60417	$\frac{20}{20}$	39612 39583	64209 64243	24 24	35791 35757	$03821 \\ 03826$	4	96179 96174	19 18
43	50 16	9 44	60446	21	39554	64278	25	. 35722	03832	4	96168	17
$\frac{44}{45}$	50 8 8 50 0	$\frac{952}{3100}$	$\frac{60474}{9.60503}$	$\frac{21}{22}$	39526 10. 39497	9,64346	$\frac{25}{26}$	35688 10. 35654	$\frac{03838}{10,03843}$	$\frac{4}{4}$	$\frac{96162}{9.96157}$	$\frac{16}{15}$
46	49 52	10 8	60532	22	39468	64381	26	35619	03849	4	96151	14
47 48	49 44 49 36	10 16 10 24	60561	23 23	39439	64415	27	35585	03854	4	96146	13
48	49 36 49 28	$10 \ 32$	60589 60618	23 24	39411 39382	64449 64483	28 28	35551 35517	03860 03865	4	96140 96135	12 11
50	8 49 20	3 10 40	9.60646	24	10.39354	9.64517	29	10.35483	10.03871	5	9.96129	10
$\begin{array}{c} 51 \\ 52 \end{array}$	49 12 49 4	$10 \ 48 \ 10 \ 56$	60675 60704	$\begin{vmatrix} 25 \\ 25 \end{vmatrix}$	39325 39296	$64552 \\ 64586$	29 30	35448 35414	$03877 \\ 03882$	5 5	96123 96118	9 8
53	48 56	11 4	60732	26	39268	64620	31	35380	03888	5	96112	7
54	48 48	11 12	60761	26	39239	64654	31	35346	03893	5	96107	6
55 56	8 48 40 48 32	3 11 20 11 28	9. 60789 60818	$\begin{array}{c} 27 \\ 27 \end{array}$	$10.39211 \\ 39182$	$9.64688 \\ 64722$	$\begin{vmatrix} 32 \\ 32 \end{vmatrix}$	10. 35312 35278	10. 03899 03905	5 5	9. 96101 96095	5 4
57	48 24	11 36	60846	28	39154	64756	33	35244	03910	5	96090	3 2
58 59	48 16 48 8	11 44 11 52	60875 60903	28 29	39125 39097	$64790 \\ 64824$	33 34	35210 35176	$03916 \\ 03921$	5 5	96084 96079	$\frac{2}{1}$
60	48 0	12 0	60931	29	39069	64858	35	35142	03927	6	96079	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
113°			A		A	В	1	В	C	<u>'</u>	C	660
-	Address of the last of the las			Charles .						-		

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TABLE 44.

Log. Sines, Tangents, and Secants.

240			A	• • •	A	В		В	C		C	1550
M.	Hour A.M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
0	8 48 0	3 12 0	9. 60931	0	10. 39069	9. 64858	0	10. 35142	10.03927	0	9. 96073	60
$egin{bmatrix} 1 \\ 2 \end{bmatrix}$	47 52 47 44	$\begin{array}{c c}12&8\\12&16\end{array}$	60960 60988	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	39040 39012	$64892 \\ 64926$	1 1	35108 35074	03933 03938	$\begin{bmatrix} 0 \\ 0 \end{bmatrix}$	96067 96062	59 58
3	47 36	$\frac{12}{12} \frac{10}{24}$	61016	î	38984	64960	2	35040	03944	lő	96056	57
4	47 28	12 32	61045	2	38955	64994	2	35006	03950	0	96050	56
5	8 47 20	3 12 40	9.61073	$\frac{1}{2}$	10. 38927	9.65028	3	10.34972	10.03955	0	9.96045	55
$\frac{6}{7}$	$\begin{array}{c c} 47 & 12 \\ 47 & 4 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$61101 \\ 61129$	3 3	38899 38871	65062	3 4	34938 34904	03961	1	96039	54
8	46 56	13 4	61158	4	38842	65096 65130	4	34870	$03966 \\ 03972$	1 1	96034 96028	53 52
9	46 48	13 12	61186	4	38814	65164	5	34836	03978	1	96022	51
10	8 46 40	3 13 20	9.61214	5	10.38786	9.65197	6	10.34803	10.03983	1	9.96017	50
11	46 32	13 28	61242	5	38758	65231	6	34769	03989	1	96011	49
12 13	46 24 46 16	13 36 13 44	$61270 \\ 61298$	6 6	38730 38702	65265 65299	7 7	34735 34701	03995 04000	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	96005 96000	48 47
14	46 8	13 52	61326	6	38674	65333	8	34667	04006	1	95994	46
15	8 46 0	3 14 0	9.61354	7	10. 38646	9.65366	8	10.34634	10.04012	1	9.95988	45
16	45 52	14 8	61382	7	38618	65400	9	34600	04018	2	95982	44
17	45 44 45 36	14 16	61411	8	38589	65434	9	34566	04023	2	95977	43
18 19	45 36	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	61438 61466	8 9	38562 38534	65467 65501	10	34533 34499	04029 04035	$\begin{vmatrix} 2\\2 \end{vmatrix}$	95971 95965	42 41
$\frac{10}{20}$	8 45 20	3 14 40	9, 61494	$\frac{3}{9}$	10. 38506	9.65535	11	10. 34465	10. 04040	$-\frac{2}{2}$	9.95960	40
21	45 12	14 48	61522	10	38478	65568	12	34432	04046	2	95954	39
22	45 4	14 56	61550	10	38450	65602	12	34398	04052	2	95948	38
$\begin{array}{c} 23 \\ 24 \end{array}$	44 56 44 48	$egin{array}{cccc} 15 & 4 \ 15 & 12 \end{array}$	61578 61606	11 11	38422 38394	65636 65669	13	34364 34331	04058 04063	$\begin{vmatrix} 2\\2 \end{vmatrix}$	95942 95937	37 36
$\frac{24}{25}$	8 44 40	3 15 20	9, 61634	12	10. 38366	9.65703	14	$\frac{34331}{10.34297}$	10.04069	$\frac{2}{2}$	9. 95931	35
26	44 32	15 28	61662	12	38338	65736	15	34264	04075	2	95925	34
27	. 44 24	15 36	61689	12	38311	65770	15	34230	04080	3	95920	33
28	44 16	15 44	61717	13	38283	65803	16	34197	04086	3	95914	32
$\frac{29}{30}$	8 44 8 8 44 0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9,61773	$\frac{13}{14}$	$\frac{38255}{10.38227}$	65837	$\frac{16}{17}$	$\frac{34163}{10.34130}$	04092	$\frac{3}{2}$	95908	31
31	43 52	16 8	61800	14	38200	9.65870 65904	17	34096	$10.04098 \\ 04103$	3 3	9. 95902 95897	30 29
32	43 44	16 16	61828	15	38172	65937	18	34063	04109	3	95891	28
33	43 36	16 24	61856	15	38144	65971	18	34029	04115	3	95885	27
34	43 28	16 32	61883	16	38117	66004	19	33996	04121	3	95879	26
35 36	8 43 20 43 12	3 16 40 16 48	9. 61911 61939	16 17	10. 38089 38061	9.66038 66071	$\begin{vmatrix} 20 \\ 20 \end{vmatrix}$	10. 33962 33929	$10.\ 04127 \\ 04132$	3	9. 95873 95868	$\frac{25}{24}$
37	43 4	16 56	61966	17	38034	66104	21	33896	04138	4	95862	23
38	42 56	17 4	61994	18	38006	66138	21	33862	04144	4	95856	22
39	42 48	17 12	62021	18	37979	66171	22	33829	04150	4	95850	21
40 41	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3 17 20 17 28	$9.62049 \\ 62076$	18 19	$10.37951 \\ 37924$	9. 66204	$\begin{vmatrix} 22 \\ 23 \end{vmatrix}$	10. 33796	10. 04156 04161	4	9. 95844	20
42	42 34	17 36	62104	19	37896	66238 66271	23	33762 33729	04167	4	95839 95833	19 18
43	42 16	17 44	62131	20	37869	66304	24	33696	04173	4	95827	17
44	42 8	17 52	62159	20	37841	66337	25	33663	04179	4	95821	16
45	8 42 0	3 18 0	9.62186	21	10. 37814	9. 66371	25	10. 33629	10.04185	4	9. 95815	15
46 47	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c cc} & 18 & 8 \\ & 18 & 16 \end{array}$	62214 62241	$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	37786	66404 66437	26 26	33596 33563	04190 04196	5	95810 95804	14 13
48	41 36	18 24	62268	22	37732	66470	27	33530	04190	5	95798	12
49	41 28	18 32	62296	23	37704	66503	27	33497	04208	5	95792	11
50	8 41 20	3 18 40	9. 62323		10. 37677	9.66537	28	10. 33463	10.04214	5	9.95786	10
51	$\begin{array}{c c} 41 & 12 \\ 41 & 4 \end{array}$	18 48	62350	24	37650	66570	28	33430	04220	5	95780	9
52 53	41 4 40 56	$ \begin{array}{cccc} 18 & 56 \\ 19 & 4 \end{array} $	$62377 \\ 62405$	$\begin{array}{ c c } 24 \\ 24 \end{array}$	37623 37595	66603 66636	29 30	33397 33364	$04225 \\ 04231$	5 5	95775 95769	8 7
54	40 48	19 12	62432	25	37568	66669	30	33331	04237	5	95763	6
55	8 40 40	3 19 20	9.62459	25	10. 37541	9.66702	31	10. 33298	10.04243	5	9. 95757	5
56	40 32	19 28	62486	26	37514	66735	31	33265	04249	5	95751	4
57 58	40 24 40 16	19 36 19 44	62513 62541	26 27	37487 37459	66768 66801	$\frac{32}{32}$	33232 33199	$04255 \\ 04261$	5 6	95745 95739	$\frac{3}{2}$
59	40 8	19 52	62568	27	37432	66834	33	33166	04267	6	95733	ī
60	40 0	20 0	62595	28	37405	66867	33	33133	04272	6	95728	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
1140	,		A		A	В		В	С		C	65°
			Sagands of ti			0. 9.			7.	18 1	-	

Seconds of time		15	2s	38	41	5s	65	7:
Prop. parts of cols.	ABC	3 4 1	7 8 1	10 13 2	14 17 3	17 21 4	21 25 4	24 29 5

1 39 52 20 8 62622 0 37378 66900 1 33100 04278 0 3 39 44 20 16 62649 1 37351 66933 1 33067 04284 0 4 39 28 20 32 62703 2 37297 66999 2 33001 04296 0 5 8 39 20 3 20 40 9.62730 2 10.37270 9.67032 3 10.32968 10.04302 1 7 39 4 20 56 62784 3 37216 67098 4 32902 04314 1 8 38 56 21 4 62811 4 37182 67163 5 32837 04326 1 10 8 38 40 3 21 20 9.62865 4 10.37135 9.67196 5 10.32804 10.04332 1 11 38 38 24 21 36 62918 5 37108 67229 6 32711	TABLE 44. [Page 797												
M.													
0 8 40 0 3 20 0 9.62595 0 0 10.37405 9.66867 0 0 10.33133 10.04272 0 0 1 39 52 20 8 62622 0 62622 0 37378 66900 1 1 33100 04278 0 0 04278 0 0 2 39 44 20 16 62649 1 37351 66933 1 33067 04284 0 0 04284 0 0 3 39 36 20 24 62676 1 37324 66966 2 2 33034 04290 0 0 0 0 0 0 0 04284 0 0 5 8 39 20 3 20 40 9.62730 2 2 10.37270 9.67032 3 10.32968 10.04302 1 1 0	С	154°											
1 39 52 20 8 62622 0 37378 66903 1 33100 04278 0 2 39 44 20 16 62649 1 37351 66933 1 33067 04284 0 3 39 36 20 24 62676 1 37324 66966 2 33001 04296 0 5 8 39 20 3 20 40 9.62730 2 10.37270 9.67032 3 10.32968 10.04302 1 6 39 12 20 48 62757 3 37243 67065 3 32935 04308 1 7 39 4 20 56 62784 3 37216 67098 4 32902 04308 1 8 38 56 21 4 62811 4 37189 67131 4 32869 04320 1 10 8 38 40 3 12 20 9.62865 4 10.37135 9.67163 5 32837 04325	Cosine.	М.											
2 39 44 20 16 62649 1 37351 66933 1 33067 04284 0 3 39 36 20 24 62676 1 37324 66966 2 33034 04290 0 5 8 39 20 3 20 40 9.62730 2 10.37270 9.67032 3 10.32968 10.04302 1 6 39 12 20 48 62757 3 37243 67065 3 32935 04308 1 7 39 4 20 56 62784 3 37216 67065 3 32935 04308 1 9 38 48 21 12 62881 4 37162 67163 5 32837 04326 1 10 8 38 40 3 21 20 9.62865 4 10.37135 9.67196 5 10.32804 10.04332 1 11 38 32 21 36 62918 5 37082 67265 7 32771 0	9.95728	60											
3 39 36 20 24 62676 1 37324 66966 2 33034 04290 0 5 8 39 20 32 0 40 9.62730 2 10.37270 9.67032 3 10.32968 10.04302 1 6 39 12 20 48 62757 3 37243 67065 3 32935 04308 1 7 39 4 20 56 62784 3 37216 67098 4 32902 04314 1 8 38 56 21 4 62811 4 37189 67131 4 32869 04320 1 9 38 48 21 12 62838 4 37162 67163 5 32837 04326 1 10 8 38 40 3 21 20 9.62865 4 10.37135 9.67196 5 10.32804 10.04332 1 11 33 824 21 36 62918 5 37082 67265 7 32735 0	95722 95716	59 58											
5 8 39 20 3 20 40 9.62730 2 10.37270 9.67032 3 10.32968 10.04302 1 6 39 12 20 48 62757 3 37243 67065 3 32935 04308 1 7 39 4 20 56 62784 3 37216 67098 4 32902 04314 1 8 38 56 21 4 62811 4 37189 67131 4 32869 04320 1 10 8 38 40 3 21 20 9.62865 4 10.37135 9.67196 5 10.32804 10.04332 1 11 38 32 21 28 62892 5 37108 67229 6 32771 04337 1 12 38 24 21 36 62918 5 37082 67262 7 32738 04343 1 13 3816 21 44 62945 6 37055 67295 7 32736 04349 1 <	95710	57											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{95704}{9.95698}$	56 55											
8 38 56 21 4 62811 4 37189 67131 4 32869 04320 1 9 38 48 21 12 62838 4 37162 67163 5 32837 04326 1 10 8 38 40 3 21 20 9.62865 4 10.37135 9.67196 5 10.32804 10.04332 1 11 38 32 21 28 62892 5 37108 67229 6 32771 04337 1 12 38 24 21 36 629918 5 37082 67262 7 32738 04343 1 13 38 16 21 44 62945 6 37055 67295 7 32705 04349 1 14 38 8 21 52 62972 6 37028 67327 8 32673 04355 1 15 8 38 0 3 22 0 9.62999 7 10.37001 9.67360 8 10.32640 10	95692	54											
9 38 48 21 12 62838 4 37162 67163 5 32837 04326 1 10 8 38 40 3 21 20 9.62865 4 10.37135 9.67196 5 10.32804 10.04332 1 11 38 32 21 28 62892 5 37108 67229 6 32771 04337 1 12 38 24 21 36 62918 5 37082 67262 7 32738 04343 1 13 38 16 21 44 62945 6 37055 67295 7 32705 04339 1 14 38 8 21 52 62972 6 37028 67327 8 32673 04355 1 15 8 38 0 3 22 0 9.62999 7 10.37001 9.67360 8 10.32640 10.04361 2 16 37 52 22 8 63026 7 36948	95686 95680	53 52											
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	95674	51											
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9. 95668 95663	50 49											
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	95657	48											
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$95651 \\ 95645$	47 46											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	9.95639	45											
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$95633 \\ 95627$	44 43											
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	95621	42											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	95615 9.95609	41 40											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	95603	39											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$95597 \\ 95591$	38 37											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	95585	36											
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	9. 95579 95573	35 34											
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	95567	33											
30 8 36 0 3 24 0 9 63398 13 10 36602 9 67850 16 10 32150 10 04451 3 31 35 52 24 8 63425 14 36575 67882 17 32118 04457 3	$95561 \\ 95555$	$\frac{32}{31}$											
	9.95549	30											
	95543 95537	29 28											
33 35 36 24 24 63478 15 36522 67947 18 32053 04469 3	95531	27											
	$\frac{95525}{9.95519}$	$\frac{26}{25}$											
36 35 12 24 48 63557 16 36443 68044 20 31956 04487 4	95513	24											
38 34 56 25 4 63610 17 36390 68109 21 31891 04500 4	95507 95500	23 22											
39 34 48 25 12 63636 17 36364 68142 21 31858 04506 4 40 8 34 40 3 25 20 9.63662 18 10.36338 9.68174 22 10.31826 10.04512 4	$\frac{95494}{9.95488}$	21											
41 34 32 25 28 63689 18 36311 68206 22 31794 04518 4	95488	20 19											
42 34 24 25 36 63715 19 36285 68239 23 31761 04524 4 43 34 16 25 44 63741 19 36259 68271 23 31729 04530 4	95476 95470	18											
44 34 8 25 52 63767 19 36233 68303 24 31697 04536 4	95464	17 16											
45 8 34 0 3 26 0 9 63794 20 10 36206 9 68336 24 10 31664 10 04542 5 46 33 52 26 8 63820 20 36180 68368 25 31632 04548 5	9. 95458 95452	15 14											
47 33 44 26 16 63846 21 36154 68400 25 31600 04554 5	95446	13											
48 33 36 26 24 63872 21 36128 68432 26 31568 04560 5 49 33 28 26 32 63898 22 36102 68465 27 31535 04566 5	95440 95434	12 11											
50 8 33 20 3 26 40 9 63924 22 10 36076 9 68497 27 10 31503 10 04573 5 9	9.95427	10											
51 33 12 26 48 63950 23 36050 68529 28 31471 04579 5 52 33 4 26 56 63976 23 36024 68561 28 31439 04585 5	$95421 \\ 95415$	9 8											
53 32 56 27 4 64002 23 35998 68593 29 31407 04591 5	95409	7											
54 32 48 27 12 64028 24 35972 68626 29 31374 04597 5 55 8.32 40 3 27 20 9.64054 24 10.35946 9.68658 30 10.31342 10.04603 6 6	$\frac{95403}{9.95397}$	$\frac{6}{5}$											
56 32 32 27 28 64080 25 35920 68690 30 31310 04609 6	95391	4											
57 32 24 27 36 64106 25 35894 68722 31 31278 04616 6 58 32 16 27 44 64132 26 35868 68754 31 31246 04622 6	$95384 \\ 95378$	$\frac{3}{2}$											
59 32 8 27 52 64158 26 35842 68786 32 31214 04628 6	95372	1											
	95366	0											
M. Hour P. M. Hour A. M. Cosine. Diff. Secant. Cotangent. Diff. Tangent. Cosecant. Diff. 115° A A B B C	Sine.	М.											
115° A A B B C	· C	640											

Seconds of time	1:	2 =	3 =	4 *	5 =	6 s	7 *
Prop. parts of cols. $\left\{ egin{matrix} A \\ B \\ C \end{array} \right.$	3	7	10	13	17	20	23
	4	8	12	16	20	24	28
	1	2	2	3	4	5	5

Page 798] TABLE 44. Log. Sines, Tangents, and Secants.												
				Log.			l Sec					
260	1	-	A L a:	D. m	A	В		В	С	(C	1530
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
$0 \\ 1$	$\begin{bmatrix} 8 & 32 & 0 \\ 31 & 52 \end{bmatrix}$	$\begin{array}{cccc} 3 & 28 & 0 \\ 28 & 8 \end{array}$	$9.64184 \\ 64210$	0	10. 35816 35790	$9.68818 \\ 68850$	$\begin{array}{c} 0 \\ 1 \end{array}$	10. 31182 31150	10. 04634 04640	0	9. 95366 95360	60 59
2	31 44	28 16	64236	1	35764	68882	1	31118	04646	0	95354	58
$\frac{3}{4}$	$\begin{array}{c} 31 & 36 \\ 31 & 28 \end{array}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$64262 \\ 64288$	$\frac{1}{2}$	35738 35712	68914 68946	$\frac{2}{2}$	31086 31054	04652 04659	0	95348 95341	57 56
5	8 31 20	3 28 40	9.64313	2	10. 35687	9.68978	3	10. 31022	10. 04665	1	9. 95335	55
$\frac{6}{7}$	$\begin{array}{cccc} 31 & 12 \\ 31 & 4 \end{array}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	64339 64365	3 3	35661 35635	69010 69042	3	30990 30958	$04671 \\ 04677_{a}$	1	95329 95323	54 53
8	30 56	29 4	64391	3	35609	69074	4	30926	04683	1	95317	52
$\frac{9}{10}$	30 48 8 30 40	$\frac{29 \ 12}{3 \ 29 \ 20}$	$\frac{64417}{9,64442}$	$\left -\frac{4}{4} \right $	35583 10. 35558	$\frac{69106}{9.69138}$	$\frac{5}{5}$	$\frac{30894}{10.30862}$	04690 10, 04696	$\frac{1}{1}$	$\frac{95310}{9.95304}$	$\frac{51}{50}$
11	$30 \ 32$	29 28	64468	5	35532	69170	-6	30830	04702	1	95298	49
12 13	30 24 30 16	$\begin{array}{ccc} 29 & 36 \\ 29 & 44 \end{array}$	64494 64519	5	35506 35481	69202 69234	$\begin{vmatrix} 6\\7 \end{vmatrix}$	30798 30766	$04708 \\ 04714$	1 1	95292 95286	48 47
14	30 8	$\frac{29}{29} \frac{11}{52}$	64545	6	35455	69266	7	30734	04721	1	95279	46
15 16	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	9, 64571 64596	$\frac{6}{7}$	10. 35429 35404	9. 69298 69329	8 8	10. 30702 30671	$\begin{array}{c} 10.04727 \\ 04733 \end{array}$	$\frac{2}{2}$	9. 95273 95267	45
17	29 44	30 16	64622	7	35378	69361	9	30639	04739	2	95261	44 43
18 19	29 36 29 28	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$64647 \\ 64673$	8 8	35353 35327	69393 69425	$\frac{9}{10}$	30607 30575	$04746 \\ 04752$	$\frac{2}{2}$	95254 95248	42 41
20	8 29 20	3 30 40	9.64698	8	10. 35302	9.69457	11	10. 30543	10. 04758	$\frac{2}{2}$	$\frac{95248}{9.95242}$	40
21 22	$\begin{array}{cccc} 29 & 12 \\ 29 & 4 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$64724 \\ 64749$	$\begin{vmatrix} 9 \\ 9 \end{vmatrix}$	$35276 \\ 35251$	69488 69520	$\frac{11}{12}$	30512 30480	04764 04771	$\frac{2}{2}$	95236 95229	39 38
23	28 56	31 4	64775	10	35225	69552	12	30448	04777	2	95223	37
$\frac{24}{25}$	28 48 8 28 40	$\frac{31}{3} \frac{12}{31} \frac{12}{20}$	$\frac{64800}{9.64826}$	$\frac{10}{11}$	$\frac{35200}{10,35174}$	$\frac{69584}{9,69615}$	$\frac{13}{13}$	$\frac{30416}{10,30385}$	04783	$\frac{3}{3}$	95217	36
26	28 32	31 28	64851	11	35149	69647	14	30353	10. 04789 04796	3	9.95211 95204	35 34
27 28	28 24 28 16	$31 \ 36 \ 31 \ 44$	$64877 \\ 64902$	$\begin{array}{c c} 11 \\ 12 \end{array}$	35123 35098	69679 69710	14 15	30321 30290	$04802 \\ 04808$	3	95198	33 32
29	28 8	31 52	64927	12	35073	69742	15	30258	04815	3	95192 95185	31
30 31	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$9.64953 \\ 64978$	13 13	10. 35047 35022	$9.69774 \\ 69805$	16 16	10. 30226 30195	$10.04821 \\ 04827$	3	9. 95179 95173	30
32	27 44	32 16	65003	14	34997	69837	17	30163	04833	3	95167	29 28
33 34	$\begin{bmatrix} 27 & 36 \\ 27 & 28 \end{bmatrix}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$65029 \\ 65054$	14 14	34971 34946	69868 69900	17 18	30132 30100	04840 04846	3 4	95160 95154	27 26
35	8 27 20	3 32 40	9.65079	15	10. 34921	9.69932	18	10.30068	10.04852	4	9.95148	25
36 37	$\begin{bmatrix} 27 & 12 \\ 27 & 4 \end{bmatrix}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$65104 \\ 65130$	$\begin{array}{c} 15 \\ 16 \end{array}$	34896 34870	69963 69995	19 20	30037 30005	$04859 \\ 04865$	4	95141 95135	24 23
38	26 56	33 4	65155	16	34845	70026	20	29974	04871	4	95129	22
$\frac{39}{40}$	26 48 8 26 40	$\frac{33 \ 12}{3 \ 33 \ 20}$	$\frac{65180}{9,65205}$	$\frac{16}{17}$	$\frac{34820}{10,34795}$	$\frac{70058}{9,70089}$	$\frac{21}{21}$	$\frac{29942}{10.29911}$	04878 10, 04884	$\frac{4}{4}$	$\frac{95122}{9.95116}$	$\frac{21}{20}$
41	26 32	33 28	65230	17	34770	70121	22	29879	04890	4	95110	19
42 43	26 24 26 16	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$65255 \\ 65281$	18 18	$\frac{34745}{34719}$	70152 70184	22 23	29848 29816	04897 04903	5	95103 95097	18 17
44	26 8	33 52	65306	19	34694	70215	23	29785	04910	5	95090	16
45 46	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	9. 65331 65356	19 19	10. 34669 34644	9. 70247 70278	24 24	$\begin{array}{c} 10.29753 \\ 29722 \end{array}$	$10.04916 \\ 04922$	5 5	9. 95084 95078	15 14
47	25 44	34 16	65381	20	34619	70309	25	29691	04929	5	95071	13
48 49	25 36 25 28	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	65406 65431	20 21	$34594 \\ 34569$	70341 70372	$\begin{array}{c} 25 \\ 26 \end{array}$	29659 29628	04935 04941	5 5	95065 95059	12 11
50	8 25 20	3 34 40	9.65456	21	10. 34544	9.70404	26	10. 29596	10.04948	5	9.95052	10
51 52	$\begin{array}{c cccc} 25 & 12 \\ 25 & 4 \end{array}$	34 48 34 56	65481 65506	$\frac{22}{22}$	$34519 \\ 34494$	70435 70466	27 27	29565 29534	04954 04961	5	95046 95039	9 8
53	24 56	35 4	65531	22	34469	$\cdot 70498$	28	29502	04967	6	95033	7
54 55	24 48 8 24 40	$\frac{35}{3} \frac{12}{35}$	$\frac{65556}{9,65580}$	$\frac{23}{23}$	34444 10. 34420	$\frac{70529}{9.70560}$	$\frac{28}{29}$	$\frac{29471}{10.29440}$	$\frac{04973}{10.04980}$	$\frac{6}{6}$	$\frac{95027}{9.95020}$	$\frac{6}{5}$
56	24 32	35 2 a	65605	24	34395	70592	30	29408	04986	6	95014	4
57 58	$\begin{bmatrix} 24 & 24 \\ 24 & 16 \end{bmatrix}$	$35 \ 36 \ 35 \ 44$	65630 65655	24 25	$\frac{34370}{34345}$	70623 70654	$\begin{vmatrix} 30 \\ 31 \end{vmatrix}$	29377 29346	04993 04999	$\frac{6}{6}$	$95007 \\ 95001$	3 2
59	24 8	35 52	65680	25	34320	70685	31	29315	05005	6	94995	1
60	24 0	36 0	65705	25	34295	70717	32	29283	05012	6	94988	0
- 8	Hour P. M.	Hour A. M.	Cosine.	Diff.		Cotangent.	Diff.		Cosecant.	Diff.	Sine.	М.
116°		-	A		A	В		В	С		C	630

Seconds of time	1 *	2 8	8 *	. 1 s	5 8	6 s	7 =
Prop. parts of cols. $\left\{egin{array}{c} A \\ B \\ C \end{array}\right.$	3	6	10	13	16	19	22
	4	8	12	16	20	24	28
	1	2	2	3	4	5	6

					TAI	BLE 44.					[Page 7	99
				Log.	Sines, Ta	ngents, an	d Se					
270			A		A	В		В	<u> </u>		C	1520
Μ.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	8 24 0	3 36 0	9.65705	0	10. 34295	9. 70717	0	10. 29283	10.05012	0	9. 94988	60
$\frac{1}{2}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$65729 \\ 65754$	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	34271 34246	70748 70779	$\begin{vmatrix} 1 \\ 1 \end{vmatrix}$	$ \begin{array}{c c} 29252 \\ 29221 \end{array} $	$05018 \\ 05025$	0	94982 94975	59 58
3	$23 \ 36$	36 24	65779	1	34221	70810	2	29190	05031	0	94969	57
$\frac{4}{5}$	$\frac{23}{8} \frac{28}{23} \frac{20}{20}$	$\frac{36\ 32}{3\ 36\ 40}$	$\frac{65804}{9,65828}$	$\frac{2}{2}$	$\frac{34196}{10,34172}$	$\frac{70841}{9.70873}$	$\frac{2}{3}$	$\frac{29159}{10.29127}$	05038 $10,05044$	$\frac{0}{1}$	94962	56
6	$23 \ 12$	36 48	65853	2	34147	70904	3	29096	05051	1	94949	54
7	$\begin{array}{cccc} 23 & 4 \\ 22 & 56 \end{array}$	$\begin{array}{c c} 36 & 56 \\ 37 & 4 \end{array}$	65878 65902	3	34122 34098	70935 70966	4	29065 29034	$05057 \\ 05064$	1 1	94943 94936	53 52
8 9	22 48	37 12	65927	4	34073	70997	5	29003	05070	î	94930	51
10	8 22 40	3 37 20	9. 65952	4	10. 34048 34024	9. 71028	$\frac{5}{6}$	10. 28972 28941	10. 05077	1 1	9. 94923	50
$\frac{11}{12}$	$\begin{array}{ccc} 22 & 32 \\ 22 & 24 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	65976 66001	5	33999	71059 71090	6	28910	05083 05089	1	94917 94911	49 48
13	22 16	37 44	66025	5 6	33975	71121	7 7	28879	05096	$\begin{vmatrix} 1\\2 \end{vmatrix}$	94904	47
$\frac{14}{15}$	$\begin{array}{c cccc} 22 & 8 \\ \hline 8 & 22 & 0 \end{array}$	$\frac{37}{3} \frac{52}{38} {0}$	9.66075	$\frac{6}{6}$	$\frac{33950}{10,33925}$	71153 9. 71184	8	$\frac{28847}{10.28816}$	05102 $10,05109$	$\frac{2}{2}$	$\frac{94898}{9.94891}$	$\frac{46}{45}$
16	21 52	38 8	66099	6	33901	71215	8	28785	05115	2	94885	44
17 18	$\begin{array}{ccc} 21 & 44 \\ 21 & 36 \end{array}$	$\frac{38}{38} \frac{16}{24}$	$66124 \\ 66148$	7	33876 33852	$71246 \\ 71277$	9	$28754 \\ 28723$	$05122 \\ 05129$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	94878 94871	43 42
19	21 28	38 32	66173	8	33827	71308	10	28692	05135	_ 2	94865	41
20	8 21 20 21 12	3 38 40 38 48	$\begin{array}{c} 9.66197 \\ 66221 \end{array}$	8	10. 33803 33779	9.71339 71370	10	$10.28661 \\ 28630$	$\begin{array}{c} 10.05142 \\ 05148 \end{array}$	$\frac{2}{2}$	$9.94858 \\ 94852$	40 39
$\frac{21}{22}$	21 12	38 56	66246	9	33754	71401	11	28599	05155	2	94845	38
23	$\begin{array}{c} 20 \ 56 \\ 20 \ 48 \end{array}$	$\begin{array}{ccc} 39 & 4 \\ 39 & 12 \end{array}$	$66270 \\ 66295$	9 10	33730 33705	$71431 \\ 71462$	$\begin{vmatrix} 12 \\ 12 \end{vmatrix}$	28569 28538	$05161 \\ 05168$	3 3	94839 94832	37
$\frac{24}{25}$	8 20 40	3 39 20	9. 66319	$\frac{10}{10}$	10. 33681	9, 71493	$\frac{12}{13}$	$\frac{26536}{10.28507}$	$\frac{05108}{10.05174}$	$\frac{3}{3}$	9, 94826	$\frac{36}{35}$
26	20 32	39 28	66343	11	33657	71524	13	28476	05181	3	94819	34
$\frac{27}{28}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{39}{39} \frac{36}{44}$	$66368 \\ 66392$	11	33632 33608	71555 71586	14	$28445 \\ 28414$	$05187 \\ 05194$	$\begin{vmatrix} 3\\3 \end{vmatrix}$	94813 94806	$\begin{array}{c} 33 \\ 32 \end{array}$
29	20 8	39 52	66416	12	33584	71617	15	28383	05201	_ 3	94799	31
30 31	8 20 0 19 52	$\begin{array}{cccc} 3 & 40 & 0 \\ 40 & 8 \end{array}$	$9.66441 \\ 66465$	$\begin{array}{ c c }\hline 12\\13\\ \end{array}$	10. 33559 33535	9. 71648 71679	15 16	$10.28352\\28321$	$10.05207 \\ 05214$	$\begin{vmatrix} 3\\3 \end{vmatrix}$	9. 94793 94786	30 29
32	19 44	40 16	66489	13	33511	71709	16	28291	05220	4	94780	28
33 34	19 36 19 28	$\begin{array}{ccc} 40 & 24 \\ 40 & 32 \end{array}$	66513 66537	13 14	33487 33463	· 71740 71771	17 17	28260 28229	05227 05233	4 4	94773 94767	$\begin{array}{c} 27 \\ 26 \end{array}$
35	8 19 20	3 40 40	9.66562	14	$\frac{33438}{10.33438}$	9. 71802	18	10. 28198	10. 05240	4	9. 94760	$\frac{20}{25}$
36	19 12	40 48	66586	15	33414	71833	19	28167	05247	4	94753	24
$\begin{array}{c} 37 \\ 38 \end{array}$	19 4 18 56	$\begin{array}{ccc} 40 & 56 \\ 41 & 4 \end{array}$	$66610 \\ 66634$	15 15	33390 33366	71863 71894	19 20	$28137 \\ 28106$	05253 05260	4 4	94747 94740	$\begin{array}{c} 23 \\ 22 \end{array}$
39	18 48	41 12	66658	16	33342	71925	20	28075	05266	4	94734	21
40 41	8 18 40 18 32	3 41 20 41 28	9. 66682 66706	16 17	10. 33318 33294	9. 71955 71986	$\begin{array}{c} 21 \\ 21 \end{array}$	$10.\ 28045 \\ 28014$	$10.05273 \\ 05280$	4 4	9. 94727 94720	20 19
42	18 24	41 36	66731	17	33269	72017	22	27983	05286	5	94714	18
43 44	18 16 18 8	41 44 41 52	66755 66779	17 18	$33245 \\ 33221$	72048 72078	$\frac{22}{23}$	$27952 \ 27922$	05293 05300	5 5	94707 94700	17 16
45	8 18 0	3 42 0	9.66803	18	10. 33197	9.72109	$\frac{23}{23}$	10. 27891	10. 05306	$\frac{3}{5}$	$\frac{94700}{9.94694}$	15
46	17 52 17 44	$\begin{array}{cc} 42 & 8 \\ 42 & 16 \end{array}$	$66827 \\ 66851$	19 19	33173 33149	72140 72170	24	27860 27830	05313	5	94687	14
47 48	17 36	42 24	66875	19	33125	$72170 \\ 72201$	24 25	$27830 \ 27799$	05320 05326	5 5	94680 94674	13 12
49	17 28	$42 \ 32$	66899	20	33101	72231	_25	27769	05333	5	94667	11.
50 51	8 17 20 17 12	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$9.66922 \\ 66946$	20 21	10. 33078 33054	$\begin{array}{c} 9.72262 \\ 72293 \end{array}$	26 26	$\begin{array}{c} 10.27738 \\ 27707 \end{array}$	$10.05340 \\ 05346$	5 6	$9.94660 \\ 94654$	10 9
52	17 4	$42\ 56$	66970	21	33030	72323	27	27677	05353	6	94647	8
53 54	16 56 16 48	$\begin{array}{ccc} 43 & 4 \\ 43 & 12 \end{array}$	$66994 \\ 67018$	$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	33006 32982	72354 72384	27 28	$27646 \\ 27616$	05360 05366	6	94640 94634	7 6
55	8 16 40	3 43 20	9.67042	22	10. 32958	9.72415	28	10.27585	10.05373	6	9.94627	$\frac{6}{5}$
56 57	$\begin{array}{c c} 16 & 32 \\ 16 & 24 \end{array}$	$\begin{array}{cccc} 43 & 28 \\ 43 & 36 \end{array}$	67066 67090	23 23	$32934 \\ 32910$	72445 72476	29 29	$27555 \\ 27524$	05380 05386	6	94620 94614	3
58	16 16	43 44	67113	23	32887	72506	30	27494	05393	6	94607	2
59 60	16 8 16 0	$\begin{array}{cccc} 43 & 52 \\ 44 & 0 \end{array}$	$67137 \\ 67161$	$\begin{array}{c c} 24 \\ 24 \end{array}$	32863 32839	72537 72567	30 31	27463 27433	05400 05407	6 7	94600 94593	1 0
м.	Hour P. M.	Hour A. M.	Cosine.	Diff.						<u> </u>		
M. 117°	Hour P. M.	Hour A.M.	A	Dill.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M. 62°
												02-

15 18 21 19 23 27 4 5 6

Seconds of time

Prop. parts of cols. $\begin{cases} A \\ B \\ C \end{cases}$

F	age 800]				TAE	BLE 44.		-				
900				Log.		igents, and	Sec		C		•	1540
28°	Hour A. M.	Hour P. M.	A Sine.	Diff.	A Cosecant.	B Tangent.	Diff.	B Cotangent.	C Secant.	Diff.	C Cosine.	151° M.
0	8 16 0	3 44 0	9. 67161	0	10. 32839	9. 72567	0	10. 27433	10. 05407	0	9. 94593	60
$\frac{1}{2}$	15 52 15 44	44 8 44 16	$67185 \\ 67208$	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	$32815^{\circ} \ 32792$	$72598 \\ 72628$	1 1	$27402 \\ 27372$	$05413 \\ 05420$	0	94587 94580	59 58
$\frac{3}{4}$	15 36 15 28	44 24 44 32	$67232 \\ 67256$	$\frac{1}{2}$	$32768 \\ 32744$	$72659 \\ 72689$	$\frac{2}{2}$	27341 27311	$05427 \\ 05433$	0	94573 94567	57 56
5	8 15 20	3 44 40	9.67280	2	10.32720	9.72720	3	10. 27280	10.05440	1	9.94560	55
6 7	$\begin{array}{ccc} 15 & 12 \\ 15 & 4 \end{array}$	44 48 44 56	67303 67327	3	$32697 \\ 32673$	$72750 \\ 72780$	3 4	$27250 \\ 27220$	$05447 \\ 05454$	1 1	94553 94546	54 53
8 9	14 56 14 48	$egin{array}{cccc} 45 & 4 \ 45 & 12 \ \end{array}$	$67350 \\ 67374$	3	$32650 \\ 32626$	$72811 \\ 72841$	4 5	27189 27159	$05460 \\ 05467$	1 1	94540 94533	52 51
$\overline{\frac{10}{11}}$	8 14 40 14 32	3 45 20 45 28	$9.67398\\67421$	4 4	$10.32602\\32579$	9. 72872 72902	$\frac{5}{6}$	$10.27128 \\ 27098$	$10.05474 \\ 05481$	1	9. 94526 94519	50 49
12	14 24	45 36	67445	5 5	32555	72932	6	27068	05487	1	94513	48
13 14	14 16 14 8	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	67468 67492	5	32532 32508	72963 72993	$\frac{7}{7}$	27037 27007	05494 05501	$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$	94506 94499	47 46
15 16	8 14 0 13 52	3 46 0 46 8	9. 67515 67539	6 6	$10.32485 \\ 32461$	9. 73023 73054	8	$10.26977 \\ 26946$	$\begin{array}{c} 10.05508 \\ 05515 \end{array}$	$\frac{2}{2}$	9.94492 94485	45 44
17 18	13 44 13 36	$\begin{array}{c c} 46 & 16 \\ 46 & 24 \end{array}$	$67562 \\ 67586$	7 7	$32438 \\ 32414$	$73084 \\ 73114$	9	26916 26886	$05521 \\ 05528$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	$94479 \\ 94472$	43 42
19	13 28	46 32	67609	$\frac{7}{8}$	$\frac{32391}{10.32367}$	73144	10	26856	. 05535	$\frac{2}{2}$	94465	41
20 21	8 13 20 13 12	3 46 40 46 48	9. 67633 67656	8	32344	9. 73175 73205	10 11	$10.26825 \\ 26795$	10. 05542 05549	2	9. 94458 94451	40 39
22 23	$\begin{array}{ccc} 13 & 4 \\ 12 & 56 \end{array}$	$\begin{array}{c c} 46 & 56 \\ 47 & 4 \end{array}$	67680 67703	9	$32320 \\ 32297$	$73235 \\ 73265$	$\begin{array}{c} 11 \\ 12 \end{array}$	$26765 \\ 26735$	$05555 \\ 05562$	3	94445 94438	38 37
$\frac{24}{25}$	$\frac{12\ 48}{8\ 12\ 40}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9. 67750	$\frac{9}{10}$	$\frac{32274}{10.32250}$	$\frac{73295}{9.73326}$	$\frac{12}{13}$	$\frac{26705}{10.26674}$	$\frac{05569}{10,05576}$	$\frac{3}{3}$	$\frac{94431}{9.94424}$	$\frac{36}{35}$
$\begin{array}{c} 26 \\ 26 \\ 27 \end{array}$	$\begin{array}{c} 12 & 10 \\ 12 & 32 \\ 12 & 24 \end{array}$	47 28 47 36	67773 67796	10 10	32227 32204	73356 73386	13 14	26644 26614	05583 05590	3	94417 94410	34 33
28	12 16	47 44	67820	11	32180	73416	14	26584	05596	3	94404	32
$\frac{29}{30}$	$\begin{array}{c cc} 12 & 8 \\ \hline 8 & 12 & 0 \end{array}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\frac{67843}{9.67866}$	$\frac{11}{12}$	32157 10.32134	73446 9. 73476	$\frac{15}{15}$	$\frac{26554}{10.26524}$	$\frac{05603}{10.05610}$	$\frac{3}{3}$	94397 9.94390	31 30
$\begin{vmatrix} 31 \\ 32 \end{vmatrix}$	11 52 11 44	48 8 48 16	67890 67913	12 12	$32110 \\ 32087$	73507 73537	16 16	26493 26463	05617 05624	4	94383 94376	29 28
33 34	$\begin{array}{ccc} 11 & 36 \\ 11 & 28 \end{array}$	48 24 48 32	$67936 \\ 67959$	13 13	$32064 \\ 32041$	73567 73597	17 17	26433 26403	$05631 \\ 05638$	4 4	94369 94362	27 26
35	8 11 20	3 48 40	9.67982	14	10. 32018	9.73627	18	10. 26373	10.05645	4	9.94355	25
36 37	$\begin{array}{cccc} 11 & 12 \\ 11 & 4 \\ \end{array}$	48 48 48 56	68006 68029	14 14	31994 31971	73657 73687	18 19	26343 26313	05651 05658	4	94349 94342	24 23
38 39	10 56 10 48	$\begin{array}{c cccc} 49 & 4 \\ 49 & 12 \end{array}$	68052 68075	15 15	$31948 \\ 31925$	$73717 \\ 73747$	19 20	26283 26253	$05665 \\ 05672$	4	94335 94328	22 21
$\frac{40}{41}$	8 10 40 10 32	3 49 20 49 28	9. 68098 68121	16 16	10. 31902 31879	9. 73777 73807	20 21	$10.26223 \\ 26193$	$10.05679 \\ 05686$	5 5	9. 94321 94314	20 19
42 43	10 24 10 16	49 36 49 44	68144 68167	16 17	31856 31833	73837 73867	$\begin{array}{c} 21 \\ 22 \end{array}$	$26163 \\ 26133$	05693 05700	5 5	94307 94300	18 17
44	10 8	49 52	68190	17	31810	73897	22	26103	05707	5	94293	16
45 46	$\begin{array}{cccc} 8 & 10 & 0 \\ & 9 & 52 \end{array}$	3 50 0 50 8	9. 68213 68237	17 18	10. 31787 31763	9. 73927 73957	23 23	$10.26073 \\ 26043$	$10.05714 \\ 05721$	5 5	9. 94286 94279	15 14
47 48	9 44 9 36	50 16 50 24	68260 68283	18 19	31740 31717	73987 74017	24 24	26013 25983	$05727 \\ 05734$	5	94273 94266	13 12
<u>49</u> 50	9 28 8 9 20	50 32 3 50 40	68305 9.68328	$\frac{19}{19}$	$\frac{31695}{10.31672}$	$\frac{74047}{9,74077}$	$\frac{25}{25}$	$\frac{25953}{10,25923}$	05741 10.05748	$\frac{6}{6}$	94259 9.94252	11 10
51 52	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	50 48 50 56	68351	20 20	31649 31626	74107 74137	26 26	25893 25863	05755 05762	6	94245 94238	9 8
53	8 56	51 4	68397	21	31603	74166	27	25834	05769	6	94231	7
54 55	8 48 8 40	$\frac{51}{3} \frac{12}{51} \frac{12}{20}$	$\frac{68420}{9.68443}$	$\frac{21}{21}$	$\frac{31580}{10.31557}$	$\frac{74196}{9.74226}$	$\frac{27}{28}$	$\frac{25804}{10.25774}$	$\frac{05776}{10.05783}$	$\frac{6}{6}$	94224 9.94217	$\frac{6}{5}$
56 57	8 32 8 24	51 28 51 36	68466 68489	22 22	31534 31511	$74256 \\ 74286$	28 29	$25744 \\ 25714$	05790 05797	6 7	94210 94203	3
58 59	8 16 8 8	51 44 51 52	$68512 \\ 68534$	22 23	31488 31466	$74316 \\ 74345$	29 30	25684 25655	$05804 \\ 05811$	7	94196 94189	2
60	8 0	52 0	68557	23	31443	74375	30	25625	05818	7	94182	Ō
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М
118°			A	-	A	В		В	C		С	61°
		-		. 10-			-					

Seconds of time	18	25	38	41	5s	G ₃	75
Prop. parts of cols. $\left\{ egin{matrix} \Lambda \\ B \\ C \end{array} \right.$	3	6	9	12	15	17	20
	4	8	11	15	19	23	26
	1	2	3	3	4	5	6

					TAI	BLE 44.					[Page 8	01
			1	Log.	Sines, Tan	gents, and	l Sec					
290	`		A	,	A	В	,	В	c		С	150°
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	8 8 0	3 52 0	9.68557	0	10. 31443	9.74375	0	10. 25625	10.05818	0	9.94182	60
1 2	7 52 7 44	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	68580 68603	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	$31420 \\ 31397$	$74405 \\ 74435$	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	25595 25565	$05825 \\ 05832$	0	$94175 \\ 94168$	59 58
3	7 36	52 24	68625	î	31375	74465	1	25535	05839	0	94161	57
4	7 28	52 32	68648	1	31352	74494	$\frac{2}{2}$	25506	05846	$\frac{0}{1}$	$\frac{94154}{9.94147}$	$\frac{56}{55}$
5 6	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 3 & 52 & 40 \\ 52 & 48 \end{bmatrix}$	$9.68671 \\ 68694$	$\frac{2}{2}$	10. 31329 31306	$9.74524 \\ 74554$	$\frac{2}{3}$	$10.25476 \\ 25446$	10. 05853 05860	1	94140	$\frac{55}{54}$
7	7 4	52 56	68716	3	31284	74583	3	25417	05867	1	94133	53
8	6 56	$53 ext{ } 4 \\ 53 ext{ } 12$	$68739 \\ 68762$	3 3	$31261 \\ 31238$	$74613 \\ 74643$	4	$25387 \\ 25357$	$05874 \\ 05881$	$\begin{array}{ c c }\hline 1\\1 \end{array}$	94126 94119	$\frac{52}{51}$
$\frac{9}{10}$	8 6 40	3 53 20	9.68784	4	$\frac{31238}{10.31216}$	9.74673	$\frac{1}{5}$	$\frac{25337}{10.25327}$	10.05888	1	9.94112	50
11	6 32	53 28	68807	4	31193	74702	5	25298	05895	1	94105	49
12	6 24 6 16	53 36 53 44	$68829 \\ 68852$	5	$\begin{array}{c} 31171 \\ 31148 \end{array}$	$74732 \\ 74762$	6	25268 25238	$05902 \\ 05910$	$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	94098 94090	48 47
13 14	$\begin{array}{c} 6 \ 16 \\ 6 \ 8 \end{array}$	53 52	68875	5	31125	74791	7	25209	05917	2	94083	46
15	8 6 0	3 54 0	9.68897	6	10.31103	9.74821	7	10. 25179	10.05924	2	9. 94076	45
16	5 52 5 44	$\begin{array}{cc} 54 & 8 \\ 54 & 16 \end{array}$	68920 68942	$\begin{bmatrix} 6 \\ 6 \end{bmatrix}$	31080 31058	$74851 \\ 74880$	8 8	$25149 \\ 25120$	05931 05938	$\begin{vmatrix} 2\\2 \end{vmatrix}$	94069 94062	44 43
17 18	5 36	54 24	68965	7	31035	74910	9	25090	05945	2	94055	42
19	5 28	54 32	68987	7	31013	74939	9	25061	05952	$\frac{2}{2}$	94048	41
20	8 5 20 5 12	3 54 40 54 48	9. 69010 69032	7 8	10. 30990 30968	9. 74969 74998	10 10	10. 25031 25002	$10.05959 \\ 05966$	$\frac{2}{3}$	9. 94041 94034	40 39
$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	5 4	54 56	69055	8	30945	75028	11	24972	05973	3	94027	38
23	4 56	55 4	69077	9	30923	75058	11	24942	05980	3	94020	37 36
$\frac{24}{25}$	8 4 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	9, 69122	$\frac{9}{9}$	30900 10. 30878	$\frac{75087}{9.75117}$	$\frac{12}{12}$	$\frac{24913}{10.24883}$	05988 10. 05995	3	$\frac{94012}{9.94005}$	35
26	4 32	55 28	69144	10	30856	75146	13	24854	06002	3	93998	34
27	4 24	55 36	69167	10	30833	75176	13	24824	06009	3	93991	33
28 29	4 16 4 8	55 44 55 52	$69189 \\ 69212$	10	30811 30788	75205 75235	14	$24795 \\ 24765$	$06016 \\ 06023$	3	93984 93977	32 31
30	8 4 0	3 56 0	9. 69234	11	10.30766	9.75264	15	$\overline{10.24736}$	10.06030	4	9. 93970	30
31	3 52	56 8	69256	12	30744	75294	15	24706	06037	4	93963 93955	29 28
32 33	$\begin{array}{c} 3 & 44 \\ 3 & 36 \end{array}$	$\begin{array}{ccc} 56 & 16 \\ 56 & 24 \end{array}$	69279 69301	$\begin{array}{ c c c }\hline 12 \\ 12 \end{array}$	30721 30699	75323 75353	16	$24677 \\ 24647$	$06045 \\ 06052$	4 4	93948	$\frac{26}{27}$
34	3 28	56 32	69323	13	30677	75382	17	24618	06059	4	93941	26
35	8 3 20	3 56 40	9.69345	13	10. 30655	9. 75411	17	10. 24589	10.06066	4	9. 93934 93927	$\begin{array}{c} 25 \\ 24 \end{array}$
36 37	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	56 48 56 56	69368 69390	13 14	30632 30610	75441 75470	18	$24559 \\ 24530$	06073 06080	4	93920	23
38	2 56	57 4	69412	14	30588	75500	19	24500	06088	5	93912	22
39	2 48	57 12	69434	15	30566	75529	$\frac{19}{20}$	$\frac{24471}{10.24442}$	06095 10.06102	$\frac{5}{5}$	93905	$\frac{21}{20}$
40 41	8 2 40 2 32	3 57 20 57 28	9. 69456 69479	15 15	10. 30544 30521	9. 75558 75588	20	24412	06102	5	93891	19
42	2 24	57 36	69501	16	30499	75617	21	24383	06116	5	93884	18
43 44	$\begin{array}{c}2\ 16\\2\ 8\end{array}$	57 44 57 52	69523 69545	16 16	30477 30455	75647 75676	$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	$24353 \\ 24324$	06124 06131	5 5	93876 93869	17 16
45	8 2 0	3 58 0	9.69567	17	10. 30433	9. 75705	22	10. 24295	10.06138	5	9. 93862	15
46	1 52	58 8	69589	17	30411	75735	23	24265	06145	5	93855	14
47 48	$\begin{array}{c} 1 \ 44 \\ 1 \ 36 \end{array}$	58 16 58 24	69611 69633	17 18	30389 30367	75764 75793	23 24	$24236 \\ 24207$	06153 06160	6	93847 93840	$\begin{array}{c c} 13 \\ 12 \end{array}$
49	1 28	58 32	69655	18	30345	75822	24	24178	06167	6	93833	11
50	8 1 20	3 58 40	9.69677	19	10. 30323	9.75852	25	10. 24148	10.06174	6	9. 93826 93819	10
$\begin{array}{c c} 51 \\ 52 \end{array}$	$\begin{array}{cc} 1 & 12 \\ 1 & 4 \end{array}$	58 48 58 56	69699 69721	19	30301 30279	75881 75910	25 26	24119 24090	$06181 \\ 06189$	6	93819	9 8
53	0 56	. 59 4	69743	20	30257	75939	26	24061	06196	6	93804	7
54	0 48	59 12	69765	$\frac{20}{20}$	30235	$\frac{75969}{9,75998}$	$\frac{27}{27}$	$\frac{24031}{10,24002}$	06203 10.06211	$-\frac{6}{7}$	93797	$\frac{6}{5}$
55 56	$\begin{bmatrix} 8 & 0 & 40 \\ 0 & 32 \end{bmatrix}$	3 59 20 59 28	9. 69787 69809	20	10. 30213 30191	9. 75998 76027	28	23973	06218	7	93782	4
57	0 24	59 36	69831	21	30169	76056	28	23944	06225	7	93775	3
58 59	$\begin{array}{c} 0 \ 16 \\ 0 \ 8 \end{array}$	59 44 59 52	69853 69875	$\begin{vmatrix} 22 \\ 22 \end{vmatrix}$	30147 30125	76086 76115	29 29	23914 23885	$06232 \\ 06240$	7 7	93768 93760	$\begin{array}{c c} 2 \\ 1 \end{array}$
60	0 0	4 0 0	69897	22	30103	76144	29	23856	06247	7	93753	Ô
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
1190			A		A	В		В	C		C	60°
-										-	-	

Seconds of time	18	23	38	48	5 ³	G ⁸	7a
Prop. parts of cols. $\left\{ egin{matrix} A \\ B \\ C \end{array} \right.$	3	6	8	11	14	17	20
	4	7	11	15	18	22	26
	1	2	3	4	4	5	6

					٠								
P	age 802]			-		TAI	3LE 44.						
			/		Log.	Sines, Tar	igents, an	d Sec	ants.				
300	м			A		A	В		B	\mathbf{C}		c	1490
M.	Hour A. M.	Но	our P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
0 1 2 3 4	8 0 0 7 59 52 59 44 59 36 59 28	4	0 0 0 8 0 16 0 24 0 32	9.69897 69919 69941 69963 69984	0 0 1 1 1	10. 30103 30081 30059 30037 30016	$\begin{array}{c} 9.76144 \\ 76173 \\ 76202 \\ 76231 \\ 76261 \end{array}$	$\begin{bmatrix} 0 \\ 0 \\ 1 \\ 1 \\ 2 \end{bmatrix}$	10. 23856 23827 23798 23769 23739	10. 06247 06254 06262 - 06269 - 06276	0 0 0 0	9. 93753 93746 93738 93731 93724	60 59 58 57 56
5 6 7 8 9	7 59 20 59 12 59 4 58 56 58 48	4	0 40 0 48 0 56 1 4 1 12	9. 70006 70028 70050 70072 70093	2 2 3 3 3	10. 29994 29972 29950 29928 29907	9. 76290 76319 76348 76377 76406	2 3 3 4 4	10. 23710 23681 23652 23623 23594	10. 06283 06291 06298 06305 06313	1 1 1 1 1	9. 93717 93709 93702 93695 93687	55 54 53 52 51
10 11 12 13 14	7 58 40 58 32 58 24 58 16 58 8	4	1 20 1 28 1 36 1 44 1 52	$\begin{array}{c} 9.70115 \\ 70137 \\ 70159 \\ 70180 \\ 70202 \end{array}$	4 4 4 5 5	10. 29885 29863 29841 29820 29798	$\begin{array}{r} 9.76435 \\ 00000000000000000000000000000000000$	5 5 6 6 7	10. 23565 23536 23507 23478 23449	10. 06320 06327 06335 06342 06350	$\begin{array}{c} 1\\1\\1\\2\\2\end{array}$	9. 93680 93673 93665 93658 93650	50 49 48 47 46
15 16 17 18 19	7 58 0 57 52 57 44 57 36 57 28	4	$egin{array}{cccc} 2 & 0 \\ 2 & 8 \\ 2 & 16 \\ 2 & 24 \\ 2 & 32 \\ \end{array}$	9. 70224 70245 70267 70288 70310	5 6 6 6 7	10. 29776 29755 29733 29712 29690	$\begin{array}{c} 9.76580 \\ 76609 \\ 76639 \\ 76668 \\ 76697 \end{array}$	7 8 8 9 9	10. 23420 23391 23361 23332 23303	10. 06357 06364 06372 06379 06386	2 2 2 2 2	9. 93643 93636 93628 93621 93614	45 44 43 42 41
20 21 22 23 24	7 57 20 57 12 57 4 56 56 56 48	4	2 40 2 48 2 56 3 4 3 12	9. 70332 70353 70375 70396 70418	7 8 8 8 . 8	10. 29668 29647 29625 29604 29582	9. 76725 76754 76783 *76812 76841	10 10 11 11 11 12	10. 23275 23246 23217 23188 23159	10. 06394 06401 06409 06416 06423	2 3 3 3 3	9. 93606 93599 93591 93584 93577	40 39 38 37 36
25 26 27 28 29	7 56 40 56 32 56 24 56 16 56 8	4	3 20 3 28 3 36 3 44 3 52	9. 70439 70461 70482 70504 70525	9 9 10 10 10	10. 29561 29539 29518 29496 29475	9. 76870 76899 76928 76957 76986	12 13 13 13 14	10. 23130 23101 23072 23043 23014	10. 06431 06438 06446 06453 06461	3 3 3 4	9. 93569 93562 93554 93547 93539	35 34
30 31 32 33 84	7 56 0 55 52 55 44 55 36 55 28	4	4 0 4 8 4 16 4 24 4 32	9. 70547 70568 70590 70611 70633	11 11 11 12 12	10. 29453 29432 29410 29389 29367	9. 77015 77044 77073 77101 77130	14 15 15 16 16	10. 22985 22956 22927 22899 22870	10. 06468 06475 06483 06490 06498	4 4 4 4	9. 93532 -93525 93517 93510 93502	30 29 28 27 26
35 36 37 38 39	7 55 20 55 12 55 4 54 56 54 48	4	4 40 4 48 4 56 5 4 5 12	9. 70654 70675 70697 70718 70739	13 13 13 14 14	10. 29346 29325 29303 29282 29261	9. 77159 77188 77217 77246 77274	17 17 18 18 19	$\begin{array}{r} 10.22841 \\ 22812 \\ 22783 \\ 22754 \\ 22726 \end{array}$	$\begin{array}{c} 10.06505 \\ 06513 \\ 06520 \\ 06528 \\ 06535 \end{array}$	4 5 5 5	9. 93495 93487 93480 93472 93465	25 24 23 22 21
40 41 42 43 44	7 54 40 54 32 54 24 54 16 54 8	4	5 20 5 28 5 36 5 44 5 52	9. 70761 70782 70803 70824 70846	14 15 15 15 16	10. 29239 29218 29197 29176 29154	9. 77303 77332 77361 77390 77418	19 20 20 21 21	10. 22697 22668 22639 22610 22582	$\begin{array}{c} 10.06543 \\ 06550 \\ 06558 \\ 06565 \\ 06573 \end{array}$	5 5 5 5 5	9. 93457 93450 93442 93435 93427	20 19 18 17 16
45 46 47 48 49	7 54 0 53 52 53 44 53 36 53 28	4	6 0 6 8 6 16 6 24 6 32	9. 70867 70888 70909 70931 70952	16 16 17 17 18	10. 29133 29112 29091 29069 29048	9. 77447 77476 77505 77533 77562	22 22 23 23 23 24	10. 22553 22524 22495 22467 22438	10. 06580 06588 06595 06603 06610	6 6 6 6	9. 93420 93412 93405 93397 93390	15 14 13 12 11
50 51 52	7 53 20 53 12 53 4 59 56	4	6 40 6 48 6 56	9.70973 70994 71015	18 18 19	10. 29027 29006 28985	9.77591 77619 77648	24 25 25 25	10. 22409 22381 22352	10. 06618 06625 06633	6 6 6	9. 93382 93375 93367	10 9 8

Seconds of time	15	2 =	31	41	5.	64	7:
Prop. parts of cols. ABC	3 4 1	5 7 2	8 11 3	11 14 4	13 18 .5	16 22 6	19 25 7

Cotangent. Diff.

9.77734

27 28

 $\frac{28}{28}$

Tangent.

10. 22266

Cosecant.

C

10.06656

 $\frac{6}{7}$

Diff.

Sine.

C

9.93344

7 6

28879

Secant.

A

10.28921

 $\frac{20}{20}$

 $\overline{21}$

Diff.

71121 71142

Cosine.

A

9.71079

59

52 56

52 48

52 40

Hour P. M.

Hour A. M.

					TA	BLE 44.					[Page 8	03
				Log.	Sines, Ta	ngents, an	d Se					
319		-	A .	1	A	В	1	В	С	,		1480
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff	Cotangent	Secant.	Diff.	Cosine.	М.
0	7 52 0	4 8 0	9.71184	0	10. 28816	9. 77877	0	10. 22123	10.06693	0	9. 93307	60
$\frac{1}{2}$	51 52 51 44	8 8 8 16	71205° 71226	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	28795 28774	77906 77935	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	22094 22065	06701 06709	0	93299 93291	59 58
3	51 36	8 24	71247	1	28753	77963	1	22037	06716	ő	93284	57
4	51 28	8 32	71268	1	28732	77992	$\frac{2}{2}$	22008	06724	1	93276	56
5	7 51 20 51 12	4 8 40 8 48	9. 71289 71310	$\begin{vmatrix} 2\\2 \end{vmatrix}$	10. 28711 28690	9. 78020 78049	2 3	10. 21980 21951	10. 06731 06739	1 1	9. 93269 93261	55 54
7	51 4	8 56	71331	2	28669	78077	3	21923	06747	1	93253	53
8 9	50 56 50 48	9 4 9 12	71352 71373	3 3	28648 28627	78106 78135	4	21894 21865	$06754 \\ 06762$	1 1	93246 93238	52 51
10	7 50 40	4 9 20	9.71393	3	10. 28607	9. 78163	5	10. 21837	10.06770	1	9, 93230	50
11	50 32	9 28	71414	4	28586	78192	5	21808	06777	1	93223	49
12 13	50 24 50 16	9 36 9 44	$71435 \\ 71456$	4	28565 28544	78220 78249	$\begin{vmatrix} 6 \\ 6 \end{vmatrix}$	$21780 \\ 21751$	06785 06793	$\begin{vmatrix} 2\\2 \end{vmatrix}$	93215 93207	48 47
14	50 8	9 52	71477	5	28523	78277	7	21723	06800	$\frac{1}{2}$	93200	46
15	7 50 0	4 10 0	9.71498	5	10. 28502	9. 78306	7	10. 21694	10.06808	$\frac{2}{2}$	9. 93192	45
16 17	49 52 49 44	10 8 10 16	71519 71539	6	28481 28461	78334 78363	8 8	21666 21637	$06816 \\ 06823$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	93184 93177	44 43
18	49 36	10 24	71560	6	28440	78391	9	21609	06831	2	93169	42
$\frac{19}{20}$	49 28 7 49 20	10 32 4 10 40	71581 9.71602	$\frac{7}{7}$	$ \begin{array}{r} 28419 \\ \hline 10.28398 \end{array} $	78419 9. 78448	$\frac{9}{9}$	$\frac{21581}{10.21552}$	$\frac{06839}{10,06846}$	$\frac{2}{3}$	$\frac{93161}{9.93154}$	$\frac{41}{40}$
21	49 12	10 48	71622	7	28378	78476	10	21524	06854	3	93146	39
22	49 4	10 56	71643	8	28357	78505	10	21495	06862	3	93138	38
23 24	48 56 48 48	$\begin{vmatrix} 11 & 4 \\ 11 & 12 \end{vmatrix}$	71664 71685	8 8	28336 28315	78533 78562	11 11	21467 21438	06869 06877	3 3	93131 93123	37 36
25	7 48 40	4 11 20	9.71705	9	10. 28295	9.78590	12	10. 21410	10.06885	3	9.93115	35
26	48 32	11 28 11 36	71726	9	28274	78618	12	21382	06892	3	93108	34
27 28	48 24 48 16	11 36	$71747 \\ 71767$	9	28253 28233	78647 78675	13	$21353 \\ 21325$	06900 06908	3 4	93100 93092	33 32
29	48 8	11 52	71788	10	28212	78704	14	21296	06916	4	93084	31
30 31	$\begin{bmatrix} 7 & 48 & 0 \\ 47 & 52 \end{bmatrix}$	$\begin{bmatrix} 4 & 12 & 0 \\ 12 & 8 \end{bmatrix}$	9. 71809 71829	10	10. 28191	9.78732	14 15	10. 21268	10.06923	4	9.93077	30
32	47 44	12 16	71850	11	28171 28150	78760 78789	15	21240 21211	06931 06939	4	93069 93061	29 28
33	47 36	12 24	71870	11	28130	78817	16	21183	06947	4	93053	27
34	$\frac{47 28}{7 47 20}$	12 32 4 12 40	$\frac{71891}{9.71911}$	$\frac{12}{12}$	$\frac{28109}{10.28089}$	$\frac{78845}{9.78874}$	$\frac{16}{17}$	$\frac{21155}{10.21126}$	06954 10.06962	$\frac{4}{5}$	93046	$\frac{26}{25}$
36	47 12	12 48	71932	12	28068	78902	17	21098	06970	5	93030	24
37 38	47 4 46 56	$\begin{array}{c c} 12 & 56 \\ 13 & 4 \end{array}$	71952 71973	13 13	28048 28027	78930 78959	17 18	21070 21041	06978	5	93022 93014	23 22
39	46 48	13 12	71994	13	28006	78987	18	21013	06986 06993	5	93007	21
40	7 46 40	4 13 20	9. 72014	14	10. 27986	9. 79015	19	10. 20985	10.07001	5	9.92999	20
41 42	46 32 46 24	13 28 13 36	$72034 \\ 72055$	14 14	27966 27945	79043 79072	19 20	20957 20928	07009 07017	5	92991 92983	19 18
43	46 16	13 44	72075	15	27925	79100	20	20900	07017	6	92976	17
44	46 8	13 52	72096 9.72116	15	27904	79128	21	20872	07032	6	92968	16
45 46	7 46 0 45 52	4 14 0 14 8	72137	15 16	$10.27884 \\ 27863$	9. 79156 79185	21 22	10. 20844 20815	$10.07040 \\ 07048$	6	9. 92960 92952	15 14
47	45 44	14 16	72157	16	27843	79213	22	20787	07056	6	92944	13
48 49	45 36 45 28	14 24 14 32	$72177 \\ 72198$	16 17	27823 27802	79241 79269	23 23	$20759 \\ 20731$	07064 07071	6	92936 92929	12 11
50	7 45 20	4 14 40	9. 72218	17	10. 27782	9. 79297	$\frac{23}{24}$	$\frac{20731}{10.20703}$	10.07079	$\frac{6}{6}$	$\frac{32323}{9.92921}$	10
51	45 12	14 48	72238	18	27762	79326	24	20674	07087	7	92913	9
52 53	45 4 44 56	$\begin{array}{ccc} 14 & 56 \\ 15 & 4 \end{array}$	72259 72279	18 18	$27741 \\ 27721$	79354 79382	$\begin{vmatrix} 25 \\ 25 \end{vmatrix}$	20646 20618	07095 07103	7 7	92905 92897	8 7
54	44 48	15 12	72299	19	27701	79410	_26_	20590	07111	7	92889	6
55 56	7 44 40 44 32	4 15 20 15 28	$9.72320 \\ 72340$	19 19	10. 27680	9. 79438	26	10. 20562	10. 07119	7	9. 92881	5
57	44 32 44 24	15 28	72340	20	27660 27640	79466 79495	$\begin{vmatrix} 26 \\ 27 \end{vmatrix}$	20534 20505	07126 07134	7 7	92874 92866	4 3
58	44 16	15 44	72381	20	27619	79523	27	20477	07142	7	92858	2
59 60	44 8 44 0	$\begin{array}{c cccc} 15 & 52 \\ 16 & 0 \end{array}$	72401 72421	$\begin{array}{c} 20 \\ 21 \end{array}$	27599 27579	79551 79579	28 28	20449 20421	07150 07158	8	92850 92842	1 0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
121°		•	A		A	В		В	C		C	580
		-										

Seconds of time	1.	2 :	3 1	4:	51	6:	7 :
Prop. parts of cols. ABC	3	5	8	10	13	15	18
	4	7	11	14	18	21	25
	1	2	3	4	5	6	7

Page	804]
= a = 1	- 001

TABLE 44.

 ${\bf Log.}$ Sines, Tangents, and Secants.

320			A		A	В		В	\mathbf{c}		C	1470
М.	Hour A.M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	7 44 0	4 16 0	9.72421	0	10. 27579	9. 79579	0	10. 20421	10.07158	0	9.92842	60
1	43 52	16 8	72441	0	27559	79607	0	20393	07166	0	92834	59
2	43 44	16 16	$72461 \\ 72482$	1	27539	79635	1	20365	$07174 \\ 07182$	0	92826 92818	58 57
3 4	$\begin{array}{c} 43 \ 36 \\ 43 \ 28 \end{array}$	$ \begin{array}{c c} 16 & 24 \\ 16 & 32 \end{array} $	72502	1	27518 27498	79663 79691	$\begin{array}{c c} 1 \\ 2 \end{array}$	$20337 \\ 20309$	07182	1	92810	56
$\frac{}{5}$	7 43 20	4 16 40	9.72522	$\frac{1}{2}$	10. 27478	9.79719	$\frac{1}{2}$	10. 20281	10.07197	1	9.92803	55
6	43 12	16 48	72542	2	27458	79747	3	20253	07205	1	92795	54
7	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$72562 \\ 72582$	$\frac{2}{3}$	$27438 \\ 27418$	79776 79804	$\frac{3}{4}$	20224 20196	$07213 \\ 07221$	1	$92787 \\ 92779$	53 52
8 9	$\frac{42}{42} \frac{30}{48}$	17 12	72602	3	27398	79832	4	20168	07221	1	92771	51
$\overline{10}$	7 42 40	4 17 20	9.72622	3	10.27378	9.79860	5	10.20140	$\overline{10.07237}$	1	9.92763	50
11	42 32	17 28	72643	4	27357	79888	5	20112	07245	1	92755	49
12	$\begin{array}{cccc} 42 & 24 \\ 42 & 16 \end{array}$	17 36	72663 72683	4	27337 27317	79916 79944	6	$20084 \\ 20056$	$07253 \\ 07261$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	92747 92739	48 47
13 14	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c} 17 & 44 \\ 17 & 52 \end{array}$	72703	$\begin{vmatrix} 4 \\ 5 \end{vmatrix}$	27297	79972	7	20038	07269	$\frac{2}{2}$	92731	46
15	$\frac{12}{7} \frac{0}{42}$	4 18 0	9.72723	5	10.27277	9,80000	7	10. 20000	10, 07277	$\frac{1}{2}$	9.92723	45
16	41 52	18 8	72743	5	27257	80028	7	19972	07285	2	92715	44
17	41 44	18 16	72763	6	27237	80056	8	19944	07293	2	92707	43,
18 19	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{18}{18} \frac{24}{32}$	72783 72803	$\begin{vmatrix} 6 \\ 6 \end{vmatrix}$	$27217 \\ 27197$	80084 80112	8 9	19916 19888	07301 07309	$\begin{vmatrix} 2\\3 \end{vmatrix}$	92699 92691	42
$\frac{10}{20}$	7 41 20	4 18 40	9, 72823	$\frac{3}{7}$	$\frac{27177}{10.27177}$	9. 80140	9	10. 19860	10.07317	3	9. 92683	40
$\overline{21}$	41 12	18 48	72843	7	27157	80168	10	19832	07325	3.	92675	39
22	41 4	18 56	72863	7	27137	80195	10	19805	07333	3	92667	38
$\begin{array}{c c} 23 \\ 24 \end{array}$	40 56 40 48	$\begin{array}{ccc} 19 & 4 \\ 19 & 12 \end{array}$	$72883 \\ 72902$	8	$27117 \\ 27098$	80223 80251	11	19777 19749	07341 07349	3	92659 92651	37 36
$\frac{24}{25}$	7 40 40	4 19 20	9, 72922	$\frac{8}{8}$	$\frac{27038}{10.27078}$	$\frac{30231}{9.80279}$	$\frac{11}{12}$	10. 19721	10. 07357	3	9. 92643	35
26	40 32	19 28	72942	9	27058	80307	12	19693	07365	3	92635	34
27	40 24	19 36	72962	9	27038	80335	13	19665	07373	4	92627	33
28	40 16	19 44	72982	9	27018	80363	13	19637	07381	4	92619	32
29	$\frac{40}{7} \frac{8}{40}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	73002 9.73022	$\frac{10}{10}$	$\frac{26998}{10.26978}$	$\frac{80391}{9.80419}$	$\frac{13}{14}$	19609 10. 19581	07389 10, 07397	$\frac{4}{4}$	$\frac{92611}{9.92603}$	31
30 31	$\begin{bmatrix} 7 & 40 & 0 \\ 39 & 52 \end{bmatrix}$	$\begin{array}{ccc} 4 & 20 & 0 \\ 20 & 8 \end{array}$	73041	10	26959	80447	14	19553	07405	4	92595	29
32	39 44	20 16	73061	11	26939	80474	15	19526	07413	4	92587.	28
33	39 36	20 24	73081	11	26919	80502	15	19498	07421	4	92579	27
34	$\frac{39 28}{7 39 20}$	20 32	73101	$\frac{11}{12}$	26899	80530	16	19470	07429	$\frac{5}{5}$	92571 9.92563	$\frac{26}{25}$
35 36	7 39 20 39 12	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	9. 73121 73140	12	10. 26879 26860	9.80558 80586	$\begin{array}{ c c }\hline 16\\17\\ \end{array}$	10. 19442 19414	10. 07437 07445	5	9. 92555	24
37	39 4	20 56	73160	12	26840	80614	17	19386	07454	5	92546	23
38	38 56	21 4	73180	13	26820	80642	18	19358	07462	5	92538	22
39	38 48	21 12	73200	13	26800	80669	18	19331	07470	5	92530	21
40 41	$\begin{bmatrix} 7 & 38 & 40 \\ 38 & 32 \end{bmatrix}$	4 21 20 21 28	9. 73219 73239	13 14	$\begin{array}{c} 10.26781 \\ 26761 \end{array}$	9. 80697 80725	19 19	10. 19303 19275	10. 07478 07486	5 6	9.92522 92514	20 19
42	38 24	21 36	73259	14	26741	80753	20	19247	07494	6	92506	18
43	38 16	21 44	73278	14	26722	80781	20	19219	07502	6	92498	17
44	38 8	$\frac{21\ 52}{}$	73298	15	26702	80808	20	19192	07510	6	92490	16
$\begin{array}{c} 45 \\ 46 \end{array}$	$\begin{bmatrix} 7 & 38 & 0 \\ 37 & 52 \end{bmatrix}$	$\begin{array}{ccc}4&22&0\\22&8\end{array}$	9. 73318 73337	15 15	10. 26682 26663	9.80836 80864	$\begin{array}{c c} 21 \\ 21 \end{array}$	10. 19164 19136	10. 07518 07527	6 6	9. 92482 92473	15 14
47	37 44	$\frac{22}{22} \frac{3}{16}$	73357	16	26643	80892	22	19108	. 07535	6	92465	13
48	37 36	22 24	73377	16	26623	80919	22	19081	07543	6	92457	12
49	37_28	22 32	73396	16	26604	80947	23	19053	07551	7	92449	11
50		4 22 40			10. 26584			10. 19025			9. 92441	10
51 52	$\begin{array}{c c} 37 & 12 \\ 37 & 4 \end{array}$	$\begin{array}{ccc} 22 & 48 \\ 22 & 56 \end{array}$	73435 73455	17 17	$26565 \\ 26545$	81003 81030	$\begin{vmatrix} 24 \\ 24 \end{vmatrix}$	18997 18970	07567 07575	7 7	92433 92425	9 8
53	36 56	23 4	73474	18	26526	81058	25	18942	07584	7	92416	7
54	36 48	23 12	73494	18	26506	81086	25	18914	07592	7	92408	6
55 56	7 36 40	4 23 20	9.73513	18	10. 26487	9.81113	26	10. 18887	10.07600	7	9. 92400	5
56 57	36 32 36 24	$\begin{array}{cccc} 23 & 28 \\ 23 & 36 \end{array}$	73533 73552	19 19	$26467 \\ 26448$	81141 81169	$\frac{26}{26}$	18859 18831	07608 07616	8 8	92392 92384	3
58	36 16	23 44	73572	19	26428	81196	27	18804	07624	8	92376	2
59	36 8	23 52	73591	20	26409	81224	27	18776	07633	8	92367	1
60	36 0	24 0	73611	20	26389	81252	28	18748	07641	8	92359	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
1220			A		A	В		В	C		C	570
No. of Lot												

Seconds of time	1 =	2 s	3 8	48	5 8	6 5	7 =
Prop. parts of cols. $\left\{egin{array}{l} A \\ B \\ C \end{array}\right\}$	2	5	7	10	12	15	17
	3	7	10	14	17	21	24
	1	2	3	4	5	6	7

	TABLE 44. [Page 805												
			3	Log.	Sines, Tan	0 ,	l Sec						
330	-		A		A	В		В	С	. 7		146°	
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.	
0	7 36 0	4 24 0	9. 73611	0	10. 26389	9.81252	0	10. 18748	10.07641	0	9. 92359	60	
$\frac{1}{2}$	$\begin{array}{c c} 35 & 52 \\ 35 & 44 \end{array}$	$\begin{array}{cc}24&8\\24&16\end{array}$	73630 73650	$\begin{array}{c c} 0 \\ 1 \end{array}$	$26370 \\ 26350$	$81279 \\ 81307$	$\begin{array}{c c} 0 \\ 1 \end{array}$	$18721 \\ 18693$	$07649 \\ 07657$	0	$92351 \\ 92343$	59 58	
3	35 36	24 24	73669	1	26331	81335	1	18665	07665	0	92335	57	
$\frac{4}{5}$	$\frac{35}{7} \frac{28}{35} \frac{20}{20}$	$\frac{24 \ 32}{4 \ 24 \ 40}$	73689 9.73708	$\frac{1}{2}$	$\frac{26311}{10,26292}$	81362 9, 81390	$\frac{2}{2}$	$\frac{18638}{10,18610}$	07674 10.07682	$\frac{1}{1}$	$\frac{92326}{9,92318}$	$\frac{56}{55}$	
6	35 12	24 48	73727	2	26273	81418	3	18582	07690	1	92310	54	
7 8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 24 & 56 \\ 25 & 4 \end{array}$	73747 73766	3	$26253 \\ 26234$	81445 81473	3 4	$18555 \\ 18527$	07698 07707	1 1	92302 92293	$\frac{53}{52}$	
9	34 48	$\frac{25}{25}$ $\frac{4}{12}$	73785	3	26215	81500	4	18500	07715	1	92285	51	
10	7 34 40	4 25 20	9. 73805	3	10. 26195 26176	9.81528 81556	5 5	10. 18472 18444	$\begin{array}{c} 10.07723 \\ 07731 \end{array}$	$\frac{1}{2}$	$9.92277 \\92269$	50 49	
$\begin{array}{c} 11 \\ 12 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	73824 73843	4	26157	81583	5	18417	07740	2	92260	48	
13	34 16	25 44	73863	4	26137	81611 81638	6	18389 18362	$07748 \\ 07756$	$\frac{2}{2}$	$92252 \\ 92244$	47 46	
$\frac{14}{15}$	34 8 7 34 0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	73882 9, 73901	$\frac{4}{5}$	$\frac{26118}{10.26099}$	9.81666	$\frac{0}{7}$	10. 18334	$\frac{07765}{10.07765}$	$\frac{2}{2}$	$\frac{92244}{9.92235}$	45	
16	33 52	26 8	73921	5	26079	81693	7	18307	07773	2	92227	44	
17 18	33 44 33 36	$\begin{bmatrix} 26 & 16 \\ 26 & 24 \end{bmatrix}$	73940 73959	5 6	$26060 \\ 26041$	$81721 \\ 81748$	8 8	$18279 \\ 18252$	$07781 \\ 07789$	$\frac{2}{3}$	$92219 \\ 92211$	43 42	
19	33 28	26 32	73978	6	26022	81776	9	18224	07798	3	92202	41	
20 21	7 33 20 33 12	4 26 40 26 48	9.73997 74017	6	10. 26003 25983	9.81803 81831	9 10	10. 18197 18169	$10.07806 \\ 07814$	3	9.92194 92186	40 39	
$\frac{21}{22}$	33 4	26 56	74036	7	25964	81858	10	18142	07823	3	92177	38	
$\begin{array}{c} 23 \\ 24 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 27 & 4 \\ 27 & 12 \end{bmatrix}$	$74055 \\ 74074$	8	25945 25926	81886 81913	11	18114 18087	$07831 \\ 07839$	3	92169 92161	37 36	
$\frac{24}{25}$	7 32 40	4 27 20	9.74093	8	$\frac{25320}{10.25907}$	9. 81941	11	10. 18059	10. 07848	3	9.92152	35	
26	$32 \ 32$	27 28	74113	8	25887	81968	12 12	18032	$07856 \\ 07864$	4	92144 92136	34 33	
$\begin{array}{c c} 27 \\ 28 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccc} 27 & 36 \\ 27 & 44 \end{array}$	74132 74151	9	25868 25849	81996 82023	13	18004 17977	07873	4	92127	32	
29	32 8	27 52	74170	9	25830	82051	13	17949	07881	4	92119	31	
$\frac{30}{31}$	$\begin{array}{cccc} 7 & 32 & 0 \\ 31 & 52 \end{array}$	4 28 0 28 8	9.74189 74208	10 10	$\begin{array}{c} 10.25811 \\ 25792 \end{array}$	9. 82078 82106	14 14	10. 17922 17894	10. 07889 07898	4	$9.92111 \\ 92102$	30 29	
32	31 44	28 16	74227	10	25773	82133	15	17867	07906	4	92094	28	
33 34	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$74246 \\ 74265$	10	25754 25735	82161 82188	15 16	17839 17812	$07914 \\ 07923$	5 5	92086 92077	27 26	
35	7 31 20	4 28 40	9.74284	11	10. 25716	9.82215	16	10. 17785	10.07931	5	9.92069	25	
$\frac{36}{37}$	31 12 31 4	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$74303 \\ 74322$	$\begin{vmatrix} 11\\12 \end{vmatrix}$	25697 25678	$82243 \\ 82270$	16	17757 17730	07940 07948	5 5	92060 92052	$\begin{array}{c} 24 \\ 23 \end{array}$	
38	30 56	29 4	74341	12	25659	82298	17	17702	07956	5	92044	22	
39	30 48 7 30 40	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	74360 9.74379	$\frac{12}{13}$	$\frac{25640}{10.25621}$	82325 9. 82352	$\frac{18}{18}$	$\frac{17675}{10.17648}$	$07965 \\ 10.07973$	$\frac{5}{6}$	$\frac{92035}{9.92027}$	$\frac{21}{20}$	
40	30 32	29 28	74398	13	25602	82380	19	17620	07982	6	92018	19	
42	30 24 30 16	29 36	74417	13	25583	82407 82435	19 20	17593 17565	07990 07998	6	92010 92002	18 17	
43 44	30 8	29 44 29 52	74436 74455	14	25564 25545	82462	20	17538	08007	6	91993	16	
45	7 30 0	4 30 0	9. 74474	14	10. 25526	9. 82489	21	10.17511	10.08015	6	9.91985	15	
46 47	29 52 29 44	30 8 30 16	74493 74512	15 15	25507 25488	82517 82544	$\begin{vmatrix} 21 \\ 22 \end{vmatrix}$	17483 17456	08024 08032	$\begin{vmatrix} 6\\7 \end{vmatrix}$	91976 91968	14 13	
48	29 36	30 24	74531	15	25469	82571	22	17429	08041	7	91959	12	
49 50	29 28 7 29 20	30 32 4 30 40	74549 9. 74568	$\frac{16}{16}$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	82599 9, 82626	$\frac{22}{23}$	17401 10, 17374	08049 10.08058	$\frac{7}{7}$	91951 9.91942	$\frac{11}{10}$	
51	29 12	30 48	74587	16	25413	82653	23	17347	08066	7	91934	9	
52 53	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	30 56 31 4	$74606 \\ 74625$	17 17	25394 25375	82681 82708	24 24	17319 17292	08075 08083	7 7	91925 91917	8 7	
54	28 48	31 12	74644	17	25356	82735	25	17265	08092	8	91908	6	
55	7 28 40	4 31 20	9.74662	17	10. 25338	9.82762	25	10. 17238	$10.08100 \\ 08109$	8	9. 91900	5 4	
56 57	$ \begin{array}{cccc} 28 & 32 \\ 28 & 24 \end{array} $	31 28 31 36	74681 74700	18	25319 25300	82790 82817	26 26	17210 17183	08117	8	91891 91883	3	
58	28 16	31 44	74719	18	25281	82844	27	17156	08126 08134	8	91874	$\begin{array}{c c} 2 \\ 1 \end{array}$	
59 60	$\begin{array}{c cc} 28 & 8 \\ 28 & 0 \end{array}$	$\begin{vmatrix} 31 & 52 \\ 32 & 0 \end{vmatrix}$	74737 74756	19	25263 25244	$82871 \\ 82899$	27 27	17129 17101	08134	8 8	91866 91857	0	
М.	Hour P. M.		Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.	
1230	<u> </u>		A	1	Α	В	-	В	C		C	560	
L							_					-	

Seconds of time	18	28	81	45	5s	68	78
Prop. parts of cols. ${A \atop B}$	2	5	7	10	12	14	17
	3	7	10	14	17	21	24
	1	2	3	4	5	6	7

P	Page 806] TABLE 44. Log. Sines, Tangents, and Secants.													
				Log.			Sec		_					
34°			A		A	В		В	С	1 1		145•		
М.	Hour A.M.	Hour P. M.	Sine.	Diff.	Cosecant	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.		
0 1	$\begin{bmatrix} 7 & 28 & 0 \\ 27 & 52 \end{bmatrix}$	$\begin{bmatrix} 4 & 32 & 0 \\ 32 & 8 \end{bmatrix}$	9. 74756 74775	0	$\begin{array}{c} 10.25244 \\ 25225 \end{array}$	9. 82899 82926	0	10. 17101 17074	10. 08143 08151	0	9. 91857	60		
2	27 44	32 16	74794	1	25206	82953	1	17047	08160	0	91849 91840	59 58		
$\frac{3}{4}$	$\begin{array}{c c} 27 & 36 \\ 27 & 28 \end{array}$	$\begin{array}{ccc} 32 & 24 \\ 32 & 32 \end{array}$	$74812 \\ 74831$	$\frac{1}{1}$	$25188 \\ 25169$	82980 83008	$\frac{1}{2}$	$17020 \\ 16992$	$08168 \\ 08177$	$\begin{array}{c c} 0 \\ 1 \end{array}$	91832 91823	57 56		
$\frac{1}{5}$	7 27 20	4 32 40	9.74850	$\frac{1}{2}$	$\frac{25155}{10.25150}$	9.83035	$\frac{2}{2}$	10. 16965	10. 08185	$\frac{1}{1}$	$\frac{91823}{9.91815}$	$\frac{50}{55}$		
6 7	$\begin{array}{ccc} 27 & 12 \\ 27 & 4 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	74868 74887	$\frac{2}{2}$	$25132 \\ 25113$	83062 83089	3	16938 16911	$08194 \\ 08202$	1 1	91806	54		
8	26 56	33 4	74906	2	$\frac{25113}{25094}$	83117	4	16883	08202	1	91798 91789	53 52		
$\frac{9}{10}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{33\ 12}{4\ 33\ 20}$	74924 9. 74943	$\frac{3}{3}$	$\frac{25076}{10.25057}$	$\frac{83144}{9.83171}$	$\frac{4}{5}$	16856 10.16829	08219 10.08228	$\frac{1}{1}$	$\frac{91781}{9.91772}$	51		
11	26 32	33 28	74961	3	25037	83198	5	16802	08237	2	91763	50 49		
12 13	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	33 36 33 44	74980 74999	4 4	$25020 \\ 25001$	$83225 \\ 83252$	5	$16775 \\ 16748$	$08245 \\ 08254$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	91755 91746	48		
14	26 8	33 52	75017	4	24983	83280	6	16720	08262	2	91738	47 46		
15	7 26 0	4 34 0	9. 75036	5	10. 24964	9. 83307	$\frac{7}{7}$	10. 16693	10. 08271	2	9. 91729	45		
$\frac{16}{17}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75054 75073	5	24946 249 2 7	83334 83361	7 8	16666 16639	08280 08288	$\begin{vmatrix} 2\\2 \end{vmatrix}$	91720 91712	44 43		
18	25 36 25 28	34 24	75091	6	24909	83388	8	16612	08297	3	91703	42		
$\frac{19}{20}$	$\frac{25}{7} \frac{28}{25} \frac{28}{20}$	$\frac{34}{4} \frac{32}{44}$	75110 9.75128	$\frac{6}{6}$	24890 10.24872	83415 9. 83442	$\frac{9}{9}$	$\frac{16585}{10.16558}$	08305 10.08314	$\frac{3}{3}$	$\frac{91695}{9,91686}$	$\frac{41}{40}$		
21	25 12	34 48	75147	6	24853	83470	9	16530	08323	3	91677	39		
22 23	$\begin{array}{cccc} 25 & 4 \\ 24 & 56 \end{array}$	$\begin{array}{ccc} 34 & 56 \\ 35 & 4 \end{array}$	75165 75184	7 7	$24835 \\ 24816$	83497 83524	10	16503 16476	08331 08340	3	91669 91660	38 37		
24	24 48	35 12	75202	7	24798	83551	11	16449	08349	3	91651	36		
$\begin{array}{c} 25 \\ 26 \end{array}$	$\begin{bmatrix} 7 & 24 & 40 \\ 24 & 32 \end{bmatrix}$	4 35 20 35 28	9. 75221 75239	8 8	$10.24779 \\ 24761$	9. 83578 83605	$\begin{array}{c} 11 \\ 12 \end{array}$	10. 16422 16395	10. 08357 08366	4	9. 91643 91634	35 34		
27	24 24	35 36	75258	8	24742	83632	12	16368	08375	4	91625	33		
28 29	$\begin{array}{ccc} 24 & 16 \\ 24 & 8 \end{array}$	$\begin{array}{ccc} 35 & 44 \\ 35 & 52 \end{array}$	$75276 \\ 75294$	9	$24724 \\ 24706$	83659 83686	13 13	16341 16314	08383 08392	4 4	91617 91608	32 31		
30	7 24 0	4 36 0	9.75313	9	10. 24687	9.83713	14	10. 16287	10.08401	4	9.91599	30		
$\frac{31}{32}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 36 & 8 \\ 36 & 16 \end{array}$	75331 7535Q	9	$24669 \\ 24650$	83740 83768	14 14	$16260 \\ 16232$	08409 08418	5	$91591 \\ 91582$	$\frac{29}{28}$		
33	23 36	36 24	75368	10	24632	83795	15	16205	08427	5	91573	27		
$\frac{34}{35}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	36 32 4 36 40	75386 9. 75405	$\frac{10}{11}$	$\frac{24614}{10.24595}$	83822 9.83849	$\frac{15}{16}$	16178 10. 16151	08435 10. 08444	$\frac{5}{5}$	$\frac{91565}{9.91556}$	$\frac{26}{25}$		
36	23 12	36 48	75423	11	24577	83876	16	16124	08453	5	91547	24		
37 38	$\begin{array}{ccc} 23 & 4 \\ 22 & 56 \end{array}$	$\begin{array}{ccc} 36 & 56 \\ 37 & 4 \end{array}$	75441 75459	$\begin{array}{c c} 11 \\ 12 \end{array}$	$24559 \\ 24541$	83903 83930	17 17	16097 16070	08462 08470	5 5	91538 91530	23 22		
39	22 48	37 12	75478	12	24522	83957	18	16043	08479	6_	91521	21		
40 41	$\begin{bmatrix} 7 & 22 & 40 \\ 22 & 32 \end{bmatrix}$	4 37 20 37 28	9. 75496 75514	12 13	10. 24504 24486	9. 83984 84011	18 18	10. 16016 15989	10. 08488 08496	6	9. 91512 91504	20 19		
42	22 24	37 36	75533	13	24467	84038	19	15962	08505	6	91495	18		
43 44	$\begin{array}{ccc} 22 & 16 \\ 22 & 8 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75551 75569	13 13	24449 24431	$84065 \\ 84092$	$\frac{19}{20}$	15935 15908	$08514 \\ 08523$	$\begin{vmatrix} 6 \\ 6 \end{vmatrix}$	91486 91477	17 16		
45	7 22 0	4 38 0	9.75587	14	10. 24413	9.84119	20	10. 15881	10.08531	7	9. 91469	15		
46 47	$\begin{array}{cccc} 21 & 52 \\ 21 & 44 \end{array}$	$\begin{array}{ccc} 38 & 8 \\ 38 & 16 \end{array}$	75605 75624	14 14	$24395 \\ 24376$	84146 84173	$\begin{array}{c c} 21 \\ 21 \end{array}$	15854 15827	08540 08549	7 7	91460 91451	14 13		
48	21 36	38 24	75642	15	24358	84200	22	15800	08558	7	91442	12		
49 50	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	38 32 4 38 40	$\frac{75660}{9.75678}$	15 15	$\frac{24340}{10.24322}$	84227 9. 84254	$\frac{22}{23}$	$\frac{15773}{10.15746}$	08567 10.08575	$\frac{7}{7}$	$\frac{-91433}{9.91425}$	$\frac{11}{10}$		
51	21 12	38 48	75696	16	24304	84280	23	15720	08584	7	91416	9		
52 53	$ \begin{array}{c cccc} 21 & 4 \\ 20 & 56 \end{array} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	75714 75733	16 16	24286 24267	84307 84334	23 24	15693 15666	08593 08602	8 8	91407 91398	8 7		
54	20 48	39 12	75751	17	24249	84361	24	15639	08611	8	91389	6		
55 56	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4 39 20 39 28	9. 75769 75787	17 17	$10.\ 24231 \\ 24213$	9. 84388 84415	25 25	10. 15612 15585	$10.08619 \\ 08628$	*8	9. 91381 91372	5 4		
57	20 24	39 36	75805	17	24195	84442	26	15558	08637	8	91363	3		
58 59	$\begin{array}{c c} 20 & 16 \\ 20 & 8 \end{array}$	39 44 39 52	75823 75841	18	$24177 \\ 24159$	84469 84496	26 27	15531 15504	08646 08655	8 9	91354 91345	$\frac{2}{1}$		
60	20 0	40 0	75859	18	24141	84523	27	15477	08664	9	91336	Ô		
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.		
1240			A		A	В		В	С		C	55		
-														

Seconds of time	1*	2s	31	4:	5.5	62	7=
Prop. parts of cols. $\left\{egin{array}{c} A \\ B \\ C \end{array}\right.$	2	5	7	9	11	14	16
	3	7	10	14	17	20	24
	1	2	3	4	5	7	8

TABLE 44. [Page 807]													
				Log.	Sines, Tar	gents, and	l Sec	ants.					
350			A		A	В		В	C	,		144°	
М.	Hour A. M.	Hour P.M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.	
0	7 20 0	4 40 0	9. 75859	0	10. 24141	9.84523 84550	0	10. 15477	10.08664	0	9. 91336 91328	60 59	
$\frac{1}{2}$	19 52 19 44	40 8 40 16	75877 75895	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	$24123 \\ 24105$	84576	$\begin{array}{c c} 0 \\ 1 \end{array}$	$15450 \\ 15424$	$08672 \\ 08681$	0	91319	58	
3	19 36	40 24	75913	1 1	24087 24069	84603 84630	$\frac{1}{2}$	$\begin{array}{c} 15397 \\ 15370 \end{array}$	08690 08699	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	91310 91301	57 56	
5	$\frac{19}{7} \frac{28}{19}$	$\frac{40\ 32}{4\ 40\ 40}$	75931 9, 75949	$\frac{1}{1}$	10, 24051	9.84657	$\frac{2}{2}$	10. 15343	10. 08708	$\frac{1}{1}$	9.91292	55	
6	19 12	40 48	75967	2	24033	84684	3	15316 15289	$08717 \\ 08726$	1 1	$91283 \\ 91274$	54 53	
7 8	19 4 18 56	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	75985 76003	2 2	24015 23997	84711 84738	4	15269	08734	1	91266	$\frac{55}{52}$	
9	18 48	41 12	76021	3	23979	84764	4	15236	08743.	$\frac{1}{2}$	91257	51	
10 11	7 18 40 18 32	4 41 20 41 28	9. 76039 76057	3 3	$\begin{array}{c} 10.23961 \\ 23943 \end{array}$	9. 84791 84818	$\begin{array}{ c c c c }\hline 4 & \\ 5 & \end{array}$	10. 15209 15182	$10.08752 \\ 08761$	2	$9.91248 \\ 91239$	50 4 9	
12	18 24	41 36	76075	4	23925	84845	5	15155	08770	$\frac{2}{2}$	91230	48	
13 14	18 16 18 8	$\begin{array}{c} 41 \ 44 \\ 41 \ 52 \end{array}$	76093 76111	4 4	23907 238 3 9	84872 84899	$\begin{array}{c c} 6 \\ 6 \end{array}$	$15128 \\ 15101$	08779 08788	2	$91221 \\ 91212$	47 46	
15	7 18 0	4 42 0	9.76129	4	10. 23871	9.84925	$\frac{7}{7}$	10. 15075	$10.08797 \\ 08806$	$\frac{2}{2}$	9.91203	45	
16 17	$17 52 \\ 17 44$	$\begin{array}{cccc} 42 & 8 \\ 42 & 16 \end{array}$	76146 76164	5 5	$23854 \\ 23836$	84952 84979	7 8	15048 15021	08806 08815	$\begin{vmatrix} 2\\3 \end{vmatrix}$	$91194 \\ 91185$	44 43	
18	17 36	42 24	76182	5	23818	85006 85033	8	14994 14967	08824 08833	3	$91176 \\ 91167$	42 41	
$\frac{19}{20}$	$\frac{17 28}{7 17 20}$	$\frac{42\ 32}{4\ 42\ 40}$	$\frac{76200}{9.76218}$	$\frac{6}{6}$	$\frac{23800}{10.23782}$	9, 85059	$\frac{8}{9}$	10. 14941	10. 08842	$\frac{3}{3}$	$\frac{91167}{9.91158}$	40	
21	17 12	42 48	76236	6	23764	85086	9	14914	08851	3	91149	39	
22 23	$\begin{array}{cccc} 17 & 4 & \\ 16 & 56 & \end{array}$	$\begin{array}{ccc} 42 & 56 \\ 43 & 4 \end{array}$	$76253 \\ 76271$	6	$23747 \\ 23729$	85113 85140	10 10	14887 14860	08859 08868	3	91141 91132	38 37	
24	16 48	43 12	76289	7	23711	85166	11	14834	08877	4	91123	36	
25 26	7 16 40 16 32	4 43 20 43 28	$9.76307 \\ 76324$	7 8	10. 23693 23676	9. 85193 85220	11 12	10. 14807 14780	10. 08886 08895	4 4	9. 91114 . 91105	35 34	
27	16 24	43 36	76342	8	23658	85247	12	14753	08904	4	91096	33	
28 29	16 16 16 8	43 44 43 52	76360 76378	8 9	$23640 \\ 23622$	85273 85300	12 13	14727 14700	$08913 \\ 08922$	4	91087 91078	$\frac{32}{31}$	
30	7 16 0	4 44 0	9.76395	9	10. 23605	9.85327	13	10. 14673	10.08931	5	9. 91069	30	
31 32	$15 52 \\ 15 44$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	76413 76431	9	$23587 \\ 23569$	85354 85380	14 14	14646 14620	08940 08949	5 5	91060 91051	29 28	
33	15 36	44 24	76448	10	23552	85407	15	14593	08958	5	91042	27	
$\frac{34}{35}$	$\frac{15}{7} \frac{28}{15} \frac{20}{20}$	44 32 4 44 40	76466 9. 76484	$\frac{10}{10}$	$\frac{23534}{10.23516}$	85434 9. 85460	$\frac{15}{16}$	$\frac{14566}{10.14540}$	08967 10.08977	$\frac{5}{5}$	91033 9.91023	26 25	
36	$15 \ 12$	44 48	76501	11	23499	85487	16	14513	08986	5	91014	24	
37 38	$\begin{array}{ccc} 15 & 4 \\ 14 & 56 \end{array}$	$\begin{array}{ccc} 44 & 56 \\ 45 & 4 \end{array}$	76519 76537	11 11	23481 23463	85514 85540	16 17	14486 14460	08995 09004	6	91005 90996	23 22	
39	14 48	45 12	76554	12	23446	85567	17	14433	09013	6	90987	21	
40 41	7 14 40 14 32	4 45 20 45 28	$9.76572 \\ 76590$	$\begin{array}{ c c }\hline 12\\12\\\end{array}$	10. 23428 23410	9. 85594 85620	18 18	10. 14406 14380	10. 09022 09031	6	9. 90978 90969	20 19	
42	14 24	45 36	76607	12	23393	85647	19	14353	09040	6	90960	18	
43 44	14 16 14 8	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	76625 76642	13	23375 23358	85674 85700	$\frac{19}{20}$	14326 14300	09049 09058	6 7	90951 90942	$\begin{array}{c} 17 \\ 16 \end{array}$	
45	7 14 0	4 46 0	9.76660	13	10. 23340	9.85727	20	10. 14273	10.09067	7	9. 90933	15	
46 47	13 52 13 44	46 8 46 16	76677 76695	14	23323 23305	85754 85780	$\frac{20}{21}$	$14246 \\ 14220$	09076 09085	7 7	90924 90915	14 13	
48	13 36	46 24	76712	14	23288	85807	21	14193	09094	7	90906	12	
49 50	$\frac{13 28}{7 13 20}$	46 32	$\frac{76730}{9.76747}$	$\frac{14}{15}$	$\frac{23270}{10.23253}$	85834 9. 85860	$\frac{22}{22}$	$\frac{14166}{10.14140}$	09104 10. 09113	7 8	$\frac{90896}{9.90887}$	$\frac{11}{10}$	
51	13 12	46 48	76765	15	23235	85887	23	14113	09122	8	90878	9	
52 53	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	46 56 47 4	76782 76800	15 16	23218 23200	85913 85940	23 24	14087 14060	09131 09140	8 8	90869 90860	8 7	
54	12 48	47 12	76817	16	23183	85967	24	14033	09149	8	90851	6	
55 56	7 12 40 12 32	4 47 20 47 28	$9.76835 \\ 76852$	16 17	10. 23165 23148	9.85993 1 86020	$\begin{array}{ c c }\hline 24\\25\\ \end{array}$	10. 14007 13980	$10.09158 \\ 09168$	8 8	9.90842 90832	$\frac{5}{4}$	
57	12 24	47 36	76870	17	23130	g 86046	25	13954	09177	9	90823	3	
58 59	$\begin{array}{ccc} 12 & 16 \\ 12 & 8 \end{array}$	47 44 47 52	76887 76904	17 17	23113 23096	86073 86100	26 26	13927 13900	09186 09195	9	90814 90805	$\begin{array}{c c} 2 \\ 1 \end{array}$	
60	$\begin{array}{ccc} 12 & 3 \\ 12 & 0 \end{array}$	48 0	76922	18	23078	86126	27	13874	09204	9	90796	0	
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.	
1250			A		A	В		В	C		С	540	

Seconds of time	15	2s	3s	49	5s	65	78
Prop. parts of cols.	2	4	7	9	11	13	16
	3	7	10	13	17	20	23
	1	2	3	5	6	7	8

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TABLE 44.

Log. Sines, Tangents, and Secants.

A B B

36°			A		A	В		В	C		C :	1480
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	7 12 0	4 48 0	9.76922	0	10. 23078	9.86126	0	10. 13874	10.09204	0	9.90796	60
1	11 52	48 8	76939	0	23061	86153	0	13847	09213	0	90787	59
2	11 44	48 16	76957	1	23043	86179	1	13821	09223	0	90777	58
3 4	$\begin{array}{c c} 11 & 36 & \\ 11 & 28 & \\ \end{array}$	$\frac{48}{48} \frac{24}{32}$	$76974 \\ 76991$	1	23026 23009	86206 86232	$\begin{array}{ c c }\hline 1\\ 2\end{array}$	13794	09232	0	90768	57
$\frac{4}{5}$	$\frac{11}{7} \frac{28}{11} \frac{20}{20}$	4 48 40	9.77009	$\frac{1}{1}$	10. 22991	9. 86259	$\frac{2}{2}$	13768 10. 13741	09241 10, 09250	$\frac{1}{1}$	$\frac{90759}{9,90750}$	$\frac{56}{55}$
$\frac{3}{6}$	11 12	48 48	77026	2	22974	86285	3	13715	09259	11.	90741	54
7	11 4	48 56	77043	$\bar{2}$	22957	86312	3	13688	09269	1	90731	53
8	10 56	49 4	77061	2	22939	86338	4	13662	09278	1	90722	52
$\frac{9}{10}$	10 48	49 12	77078	3	22922	86365	$\frac{4}{1}$	13635	09287	1	90713	51
10 11	7 10 40 10 32	4 49 20 49 28	9. 77095 77112	3 3	$10.22905 \\ 22888$	9. 86392 86418	4 5	10. 13608 13582	$10.09296 \\ 09306$	$\frac{2}{2}$	9. 90704 90694	50 49
12	10 24	49 36	77130	3	22870	86445	5	13555	09315	2	90685	48
13	10 16	49 44	77147	4	22853	86471	6	13529	09324	2	90676	47
14	10 8	49 52	77164	4	22836	86498	6	13502	09333	2	90667	46
15	7 10 0	4 50 0	9. 77181	4	10. 22819	9.86524	7	10. 13476	10.09343	2	9.90657	45
16 17	9 52 9 44	50 8 50 16	77199 77216	5 5	$22801 \\ 22784$	86551	7 7	13449 13423	09352	$\begin{vmatrix} 2\\3 \end{vmatrix}$	90648	44
18	9 36	50 16	77233	5	$\frac{22764}{22767}$	86577 86603	8	13397	09361 09370	3	90639 90630	43 42
19	9 28	50 32	77250	5	22750	86630	8	13370	09380	3	90620	41
20	7 9 20	4 50 40	9.77268	6	10.22732	9.86656	9	10. 13344	10.09389	3	9.90611	40
21	9 12	50 48	77285	6	22715	86683	9	13317	09398	3	90602	39
$\begin{array}{c} 22 \\ 23 \end{array}$	9 4 8 56	$50\ 56\ 51\ 4$	77302 77319	6 7	$22698 \\ 22681$	86709 86736	10 10	$13291 \\ 13264$	09408 09417	3 4	90592 90583	38 37
24	8 48	51 12	77336	7	22664	86762	11	13238	09417	4	90574	36
25	7 8 40	4 51 20	9.77353	7	10. 22647	9.86789	11	10. 13211	10.09435	4	9.90565	35
26	8 32	51 28	77370	7	22630	86815	11	13185	09445	4	90555	34
27	8 24	51 36	77387	8	22613	86842	12	13158	09454	4	90546	33
$\frac{28}{29}$	8 16 8 8	$51 \ 44 \ 51 \ 52$	$77405 \\ 77422$	8	$22595 \\ 22578$	\$6868 86894	12 13	13132 13106	09463 09473	5	90537 90527	32 31
30	7 8 0	4 52 0	9.77439	$\frac{-9}{9}$	10. 22561	9. 86921	$\frac{13}{13}$		10.09482	5	9,90518	30
31	752	52 8	77456	9	22544	86947	14	13053	09491	5	90509	29
32	7 44	52 16	77473	9	22527	86974	14	13026	09501	5	90499	28
33 34	7 36 7 28	$\begin{array}{cccc} 52 & 24 \\ 52 & 32 \end{array}$	77490 77507	$\frac{9}{10}$	22510 22493	87000	15	$13000 \\ 12973$	09510	5.	90490	27
$\frac{34}{35}$	7 7 20	4 52 40	9.77524	$\frac{10}{10}$	$\frac{22493}{10,22476}$	9. 87053	$\frac{15}{15}$		09520 10.09529	$\frac{5}{5}$	90480 9.90471	$\frac{26}{25}$
36	7 12	52 48	77541	10	22459	87079	16	12921	09538	6	90462	$\frac{23}{24}$
37	7 4	52 56	77558	11	22442	87106	16	12894	09548	6	90452	23
38	6 56	53 4	77575	11	22425	87132	17	12868	09557	6	90443	22
39	6 48	53 12	77592	11	$\frac{22408}{10.22391}$	87158	17	12842	09566	6	90434	$\frac{21}{20}$
40 41	7 6 40 6 32	4 53 20 53 28	9. 77609 77626	11 12	22374	$9.87185 \\ 87211$	18 18	$10.12815 \\ 12789$	10. 09576 09585	6	9. 90424 90415	20 19
42	6 24	53 36	77643	12	22357	87238	18	12762	09595	7	90405	18
43	6 16	53 44	77660	12	22340	87264	19	12736	09604	7	90396	17
44	6 8	53 52	77677	13	22323	87290	19	12710	09614	7	90386	16
45 46	$\begin{array}{cccc} 7 & 6 & 0 \\ & 5 & 52 \end{array}$	$\begin{bmatrix} 4 & 54 & 0 \\ 54 & 8 \end{bmatrix}$	9.77694		10. 22306	9.87317	20		10. 09623	7	9. 90377	15
47	5 44	54 16	77711 77728	13 13	$22289 \\ 22272$	87343 87369	$\frac{20}{21}$	$12657 \\ 12631$	09632 09642	7	90368	14 13
48	5 36	54 24	77744	14	22256	87396	21	12604	09651	7	90349	12
49	5 28	54 32	77761	14	22239	87422	22	12578	09661	8	90339	11
50	7 5 20	4 54 40	9.77778		10. 22222	9.87448		10. 12552	10.09670		9. 90330	10
51 52	$\begin{bmatrix} 5 & 12 \\ 5 & 4 \end{bmatrix}$	54 48 54 56	77795 77812	15 15	$22205 \\ 22188$	87475 87501	$\frac{22}{23}$	$12525 \\ 12499$	09680 09689	8	90320 90311	9 8
53	4 56	55 4	77829	15	$\frac{22100}{22171}$	87527	23	12499	09699	8	90301	7
54	4 48	55 12	. 77846	15	22154	87554	24	12446	09708	8	90292	6
55	7 4 40	4 55 20	9. 77862		10. 22138	9.87580	24	10. 12420	10.09718	9	9, 90282	5
56 57	4 32	55 28	77879	16	22121	87606	25	12394	09727_	. 9	90273	4
57 58	$\begin{array}{c c} 4 & 24 \\ 4 & 16 \end{array}$	55 36 55 44	77896 77913	16 16	$\frac{22104}{22087}$	87633 87659	25 26	$12367 \\ 12341$	09737 09746	9	90263 90254	3 2
59	4 8	55 52	77930	17	22070	87685	26	12341	09756	9	90244	1
60	4 0	56 0	77946	17	22054	87711	26	12289	09765	9	90235	Ô
• м.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
1260	,		A		A	В		В	C	,	C	530
L			***************************************									

Seconds of time	1*	28	2s	48	58	Ga	78
Prop. parts of cols. $\left\{ egin{matrix} \mathbf{A} \\ \mathbf{B} \\ \mathbf{C} \end{array} \right.$	2	4	6	9	11	13	15
	3	7	10	13	17	20	23
	1	2	4	5	6	7	8

	TABLE 44. [Page 809													
				Log.	Sines, Tan		l Sec							
370			A		A	В		В	C	lara i		1420		
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.		
0	7 4 0	4 56 0	9.77946	0	$10.22054 \\ 22037$	9. 87711 87738	0	10. 12289 12262	10. 09765 09775	0	$9.90235 \\ 90225$	60 59		
$\frac{1}{2}$	3 52 3 44	$\begin{array}{ccc} 56 & 8 \\ 56 & 16 \end{array}$	77963 77980	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	$\frac{22037}{22020}$	87764	1	12236	09784	0	90216	58		
3	3 36	56 24	77997	1	22003	87790	1	12210	09794	0	90206	57		
4	7 3 20	56 32 4 56 40	$\frac{78013}{9,78030}$	$\frac{1}{1}$	$\frac{21987}{10.21970}$	9. 87843	$-\frac{2}{2}$	$\frac{12183}{10.12157}$	09803 10.09813	$\frac{1}{1}$	$\frac{90197}{9.90187}$	$\frac{56}{55}$		
5 6	7 3 20 3 12	4 56 40 56 48	78047	2	21953	87869	3	12131	09822	1	90178	54		
7	3 4	56 56	78063	2	21937	87895	3	12105	09832	1	90168	53		
8 9	2 56 2 48	$\begin{array}{ccc} 57 & 4 \\ 57 & 12 \end{array}$	78080 78097	$\frac{2}{2}$	$21920 \\ 21903$	$87922 \\ 87948$	3 4	$12078 \\ 12052$	$09841 \\ 09851$	1 1	90159 90149	$\frac{52}{51}$		
10	7 2 40	4 57 20	9. 78113	$\frac{\overline{3}}{3}$	10. 21887	9.87974	4	10. 12026	10.09861	$\overline{2}$	9.90139	50		
11	2 32	57 28	78130	3	21870	88000	5	12000	09870	$\frac{2}{2}$	90130	49 48		
12 13	2 24 2 16	57 36 57 44	78147 78163	3 4	$21853 \\ 21837$	88027 88053	5 6	11973 11947	09880 09889	2	90120 90111	47		
14	2 8	57 52	78180	4	21820/	88079	6	11921	09899	2	90101	46_		
15	7 2 0	4 58 0	9.78197	4	10. 21803 21787	9.88105 88131	7 7	10. 11895 11869	10. 09909 09918	$\frac{2}{3}$	9.90091 90082	45 44		
16 17	$\begin{array}{c}1\ 52\\1\ 44\end{array}$	58 8 58 16	78213 78230	5	21787	88158	7	11842	09928	3	90072	43		
18	1 36	58 24	78246	5	21754	88184	8	11816	09937	3	90063	42		
19	1 28	58 32	78263 9. 78280	$\frac{5}{5}$	21737 10.21720	88210 9.88236	$\frac{8}{9}$	$\frac{11790}{10.11764}$	09947 10.09957	$\frac{3}{3}$	90053	$\frac{41}{40}$		
$\begin{array}{c} 20 \\ 21 \end{array}$	7 1 20 1 12	4 58 40 58 48	78280	6	21704	88262	9	11738	09966	3	90034	39		
22	1 4	58 56	78313	6	21687	88289	10	11711	09976	4	90024	$\frac{38}{37}$		
23 24	0 56 0 48	59 4 59 1 2	78329 78346	$\begin{vmatrix} 6 \\ 7 \end{vmatrix}$	$21671 \\ 21654$	88315 88341	10 10	11685 11659	09986 09995	4	90014	36		
25	7 0 40	4 59 20	9.78362	7	10. 21638	9.88367	11	10. 11633	10.10005	4	9.89995	35		
26	0 32	59 28	78379	7	$21621 \\ 21605$	88393 88420	$\begin{array}{c c} 11 \\ 12 \end{array}$	11607 11580	$10015 \\ 10024$	4	89985 89976	34 33		
27 28	$\begin{array}{ccc} 0 & 24 \\ 0 & 16 \end{array}$	59 36 59 44	78395 78412	8	21588	88446	12	11554	10024	5	89966	32		
29	0 8	59 52	78428	8	21572	88472	13	11528	10044	5	89956	31		
30 31	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 5 & 0 & 0 \\ 0 & 8 \end{bmatrix}$	9. 78445 78461	8 9	10. 21555 21539	$9.88498 \\ 88524$	13 14	10. 11502 11476	10. 10053 10063	5 5	9. 89947 89937	30 29		
32	59 44	0 16	78478	9	21522	88550	14	11450	10073	5	89927	28		
33	59 36	$\begin{array}{c} 0 & 24 \\ 0 & 32 \end{array}$	78494	9	21506 21490	88577 88603	14 15	11423 11397	$10082 \\ 10092$	5 5	89918 89908	$\begin{array}{c} 27 \\ 26 \end{array}$		
$\frac{34}{35}$	59 28 6 59 20	5 0 40	78510 9. 78527	10	$\frac{21430}{10.21473}$	9, 88629	15	10. 11371	10.10102	$\frac{6}{6}$	9.89898	$\frac{25}{25}$		
36	59 12	0 48	78543	10	21457	88655	16	11345	10112	6	89888	24		
37 38	59 4 58 56	$\begin{array}{c c} 0 & 56 \\ 1 & 4 \end{array}$	78560 78576	10	$21440 \\ 21424$	88681 88707	16 17	11319 11293	10121 10131	6	89879 89869	23 22		
39	58 48	$\overline{1}$ $1\overline{2}$	78592	11	21408	88733	17	11267	10141	6	89859	21		
40	6 58 40	5 1 20	9. 78609	11	10. 21391	9.88759	17	10. 11241	$10.\ 10151\\10160$	6	9. 89849 89840	20 19		
41 42	58 32 58 24	$\begin{array}{c c} 1 & 28 \\ 1 & 36 \end{array}$	78625 78642	11 12	21375 21358	88786 88812	18 18	11214 11188	10170	7 7	89830	18		
43	58 16	1 44	78658	12	21342	88838	19	11162	10180	7	89820	17		
$\frac{44}{45}$	58 8 6 58 0	$\begin{array}{ c c c c c c }\hline & 1 & 52 \\ \hline 5 & 2 & 0 \\ \hline \end{array}$	78674 9.78691	$\frac{12}{12}$	$\frac{21326}{10.21309}$	9.88890	$\frac{19}{20}$	$\frac{11136}{10.11110}$	10190 10.10199	$\frac{7}{7}$	89810 9, 89801	$\frac{16}{15}$		
45 46	57 52	2 8	78707	13	21293	88916	20	11084	10209	7	89791	14		
47	57 44	2 16	78723	13	21277	88942	20	11058	10219	8	89781	13		
48 49	57 36 57 28	$\begin{array}{c c} 2 & 24 \\ 2 & 32 \end{array}$	78739 78756	13	$21261 \\ 21244$	88968 88994	$\begin{vmatrix} 21\\21 \end{vmatrix}$	11032 11006	10229 10239	8 8	89771 89761	12 11		
50	6 57 20	5 2 40	9.78772	14	10. 21228	9.89020	22	10.10980	10.10248	. 8	9.89752	10		
51	57 12	2 48 2 56	78788 78805	14	21212 21195	89046 89073	22 23	10954 10927	10258 10268	8	89742 89732	9 8		
52 53	57 4 56 56	3 4	78821	14	21179	89073	23	10927	10278	9	89722	7		
54	56 48	3 12	78837	15	21163	89125	24	10875	10288	9	89712	6		
55 56	6 56 40 56 32	5 3 20 3 28	9. 78853 78869	15	10. 21147 21131	9. 89151 89177	24 24	10. 10849 10823	10. 10298 10307	9	9. 89702 89693	5		
57	56 24	3 36	78886	16	21114	89203	25	10797	10317	9	89683	3		
58	56 16	3 44 3 52	78902	16	21098	89229	25	10771 10745	10327 10337	9	89673 89663	$\begin{vmatrix} 2\\1 \end{vmatrix}$		
59 60	56 8 56 0	4 0	78918 78934	16	21082 21066	89255 89281	26 26	10745	10337	10	89653	0		
M.		Hour A. M.	Cosine.	Diff.	-	Cotangent.			Cosecant.		Sine.	М.		
1270	1		A	1	A	В	1	В	C		C	520		
<u> </u>										-				

Seconds of time	18	2s	38	48	58	6s	7.0
Prop. parts of cols. ${A \atop B}$	2	4	6	8	10	12	14
	3	7	10	13	16	20	23
	1	2	4	5	6	7	8

F	age 810]					TAI	3LE 44.						
]	Log.	Sines, Tan	gents, and	l Sec	ants.				
380				A		A	В		В	C		C	1410
М.	Hour A. M.	H	our P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	M.
0 1	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	5	$\begin{array}{cc} 4 & 0 \\ 4 & 8 \end{array}$	$\begin{array}{c} 9.78934 \\ 78950 \end{array}$	0	$10.21066 \\ 21050$	9.89281 89307	0		10. 10347	0	9.89653	60
2	55 44		4 16	78967	1	21033	89333	1	10693 10667	$10357 \\ 10367$	0	89643 89633	59 58
3	55 36		4 24	78983	1	21017	89359	1	10641	10376	i	89624	57.
4	55 28		4 32	78999	1	21001	89385	2	10615	10386	1	89614	56
$\frac{5}{6}$	6 55 20 55 12	ő	$\frac{4}{4} \frac{40}{48}$	9. 79015 79031	$\frac{1}{2}$	10. 20985 20969	9.89411 89437	3	10. 10589	10.10396	1	9.89604	55
7	55 4		4 56	79047	2	20953	89463	3	$10563 \\ 10537$	$10406 \\ 10416$	1 1	89594 89584	54 53
8	54.56		5 4	79063	2	20937	89489	3	10511	10426	Î	89574	52
9	54 48		5 12	79079	2	20921	89515	4	10485	10436	2	89564	51
10 11	6 54 40 54 32	5	5 20 5 28	9. 79095	3	10. 20905	9.89541	4	10. 10459	10. 10446	2	9.89554	50
12	54 24	ĺ	5 36	79111 79128	3	20889 20872	89567 89593	5	10433 10407	$10456 \\ 10466$	$\frac{2}{2}$	89544 89534	49 48
13	54 16		5 44	79144	3	20856	89619	6	10381	10476	2	89524	47
14	54 8		5 52	79160	4	20840	89645	6	10355	10486	2	89514	46
$\frac{15}{16}$	6 54 0	5	6 0	9. 79176	4	10. 20824	9.89671	6	10. 10329	10.10496	3	9.89504	45
16 17	53 52 53 44		$\begin{array}{cc} 6 & 8 \\ 6 & 16 \end{array}$	79192 79208	5	$20808 \\ 20792$	89697 89723	7 7	10303	10505	3	89495	44
18	53 36		$\frac{6}{6} \frac{10}{24}$	79224	5	20776	89749	8	$10277 \\ 10251$	$10515 \\ 10525$	3 3	89485 89475	43 42
19	53 28		6 32	79240	5	20760	89775	8	10225	10535	3	89465	41
20	6 53 20	5	6 40	9.79256	5	10. 20744	9.89801	9	10. 10199	10. 10545	3	9.89455	40
$\frac{21}{22}$	$53 12 \\ 53 4$		6 48	79272	6	20728	89827	9	10173	10555	4	89445	39
23	52 56		$\begin{array}{ccc} 6 & 56 \\ 7 & 4 \end{array}$	79288 79304	6	20712 20696	89853 89879	10 10	10147 10121	$10565 \\ 10575$	4	89435 89425	38 37
24	52 48		7 12	79319	6	20681	89905	10	10095	10585	4	89415	36
25	6 52 40	5	7 20	9.79335	7	10, 20665	9.89931	11	10.10069	10. 10595	4	9.89405	35
26	52 32		7 28	79351	7	20649	89957	11	10043	10605	4	89395	34
$\frac{27}{28}$	$52 24 \\ 52 16$		$\frac{7}{7} \frac{36}{44}$	79367 79383	7	$20633 \ 20617^{4}$	89983 90009	$\frac{12}{12}$	10017 09991	$10615 \\ 10625$	5	89385	33
29	52 8		7 52	79399	8	20601	90035	13	09965	10625	5	89375 89364	32 31
30	6 52 0	5	8 0	9.79415	8	10. 20585	9. 90061	13	10.09939	10.10646	5	9.89354	30
31	51 52		8 8	79431	8	20569	90086	13	09914	10656	5	89344	29
32 33	51 44 51 36		$\frac{8}{8} \frac{16}{24}$	79447 79463	8 9	20553 20537	90112 90138	14 14	09888	10666	5	89334	28
34	51 28		8 32	79478	9	20522	90164	15	09862 09836	10676 1 0 686	6	89324 89314	27 26
35	6 51 20	5	8 40	9. 79494	9	10. 20506	9.90190	15		10. 10696	6	9.89304	25
36	51 12		8 48	79510	10	20490	90216	16	09784	10706	6	89294	24
37 38	$ \begin{array}{rrr} 51 & 4 \\ 50 & 56 \end{array} $		8 56	79526	10	20474	90242	16	09758	10716	6	89284	23
39	50 48		$\frac{9}{9} \frac{4}{12}$	79542 79558	10 10	$20458 \\ 20442$	90268 90294	16 17	09732 09706	10726° 10736	6 7	89274 89264	22 21
40	6 50 40	5	9 20	9.79573	$\frac{10}{11}$	10. 20427	9. 90320	$\frac{1}{17}$	10. 09680	10. 10746	7	9.89254	$\frac{21}{20}$
41	50 32	,	9 28	79589	11	20411	90346	18	09654	10756	7	89244	19
42	50 24		9 36	79605	11	20395	90371	18	09629	10767	7	89233	18
43 44	50 16 50 8		9 44 9 52	79621	11 12	20379	90397	19	09603	10777	7	89223	17
45	6 50 0	-5	$\frac{9}{10} \frac{32}{0}$	79636 9, 79652	$\frac{12}{12}$	$\frac{20364}{10.20348}$	90423	$\frac{19}{19}$	09577 10.09551	10787 10. 10797	$\frac{7}{8}$	$\frac{89213}{9.89203}$	$\frac{16}{15}$
46	49 52	9	10 8	79668	$\frac{12}{12}$	20332	90475	20	09525	10.10797	8	9. 89203 89193	15
47	49 44		10 16	79684	12	20316	90501	20	09499	10817	8	89183	13
48	49 36		10 24	79699	13	20301	90527	21	09473	10827	8	89173	12

Seconds of time		1:	2s	35	43	5s	6s	75
Prop. parts of cols.	A	2	4	6	8	10	12	14
	B	3	6	10	13	16	19	23
	C	1	3	4	5	6	8	9

M.

49 28

49 12

49 4

48 56

48 48

48 32

48 24

48 16

48 0

48 8

Hour P. M.

6 48 40

6 49 20

10 32

10 40

10 48

10 56

11 12

11 20

11 28

11 36

11 44

 $11 \, 52$

Hour A. M.

Cosine.

A

9.79809

9.79731

Diff.

Secant.

A

10. 20191

10. 20269

Cotangent.

9.90708

9.90578

 $\frac{1}{25}$

Diff.

Tangent.

10.09292

10.09422

Cosecant.

C

10.10899

10. 10848

Diff.

 $\frac{4}{3}$

M.

Sine.

C

9.89101

9.89152

					TAI	BLE 44.					Page 81	1
]	Log.	Sines, Tar	gents, and	l Sec	ants.				
39°			A		A	В		В	C		С	140°
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	6 48 0	5 12 0	9.79887	0	10. 20113	9. 90837		10. 09163	10. 10950	0	9.89050	60
$\frac{1}{2}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 12 & 8 \\ 12 & 16 \end{array}$	79903 79918	$\begin{array}{c c} 0 \\ 1 \end{array}$	$20097 \ 20082$	90863 90889	$\begin{array}{c c} 0 \\ 1 \end{array}$	$09137 \\ 09111$	10960 10970	0	89040 89030	59 58
3	47 36	12 24	79934	1	20066	90914	1	09086	10980	1	89020	57
4	47 28	12 32	79950	_1	20050	90940	$\frac{2}{2}$	09060	10991	1	89009	56
5 6	$\begin{array}{cccc} 6 & 47 & 20 \\ 47 & 12 \end{array}$	5 12 40 12 48	9. 79965 79981	$\frac{1}{2}$	$\begin{array}{c} 10.20035 \\ 20019 \end{array}$	9. 90966 90992	$\frac{2}{3}$	10. 09034 09008	10. 11001 11011	1 1	9. 88999 88989	$\frac{55}{54}$
7	47 4	12 56	79996	2	20004	91018	3	08982	11022	1	88978	5 3
8	46 56	13 4	80012	2	19988	91043	3	08957	11032	$\begin{array}{ c c }\hline 1\\2 \end{array}$	88968 88958	52 51
$\frac{9}{10}$	6 46 40	13 12 5 13 20	9.80043	$\frac{2}{3}$	$\frac{19973}{10.19957}$	91069	$\frac{4}{4}$	$\frac{08931}{10.08905}$	$\frac{11042}{10.11052}$	$\left -\frac{z}{2} \right $	9, 88948	$\frac{51}{50}$
10 11	46 32	13 28	80058	3	19942	91121	5	08879	11063	2	88937	49
12	46 24	13 36	80074	3	19926	91147	5	08853	11073	2	88927	48
13	46 16 46 8	$\begin{array}{c c} 13 & 44 \\ 13 & 52 \end{array}$	80089 80105	3 4	19911 19895	$91172 \\ 91198$	6	$08828 \\ 08802$	$11083 \\ 11094$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	88917 88906	47 46
$\frac{14}{15}$	6 46 0	$\frac{13}{5} \frac{52}{14}$	9. 80120	$-\frac{4}{4}$	$\frac{19899}{10.19880}$	9, 91224		10. 08776	10. 11104	3	9.88896	45
16	45 52	14 8	80136	4	19864	91250	7	08750	11114	3	88886	44
17	45 44	14 16	80151	4 5	19849	$91276 \\ 91301$	8	08724 08699	11125 11135	3 3	88875 88865	43 42
18 19	45 36 45 28	$\begin{array}{ccc} 14 & 24 \\ 14 & 32 \end{array}$	80166 80182	5	19834 19818	91301	8	08673	11145	3	88855	41
20	6 45 20	5 14 40	9.80197	5	10. 19803	9. 91353	9	10.08647	10.11156	3	9.88844	40
21	45 12	14 48	80213	5	19787	91379	9	08621	11166	4	88834	39
22 23	$\begin{array}{ccc} 45 & 4 \\ 44 & 56 \end{array}$	14 56 15 4	80228 80244	6	19772 19756	91404 91430	9	08596 08570	11176 11187	4	88824 88813	$\frac{38}{37}$
24	44 48	15 12	80259	6	19741	91456	10	08544	11197	4	88803	36
25	6 44 40	5 15 20	9.80274	6	10. 19726	9. 91482	11	10.08518	10. 11207	4	9. 88793	35
26	$\begin{array}{c c} 44 & 32 \\ 44 & 24 \end{array}$	15 28	80290 80305	7	19710 19695	$91507 \\ 91533$	11 12	08493 08467	$11218 \\ 11228$	5	88782 88772	34 33
27 28	44 16	$15 \ 36 \ 15 \ 44$	80320	7	19680	91559	12	08441	11239	5	88761	$\frac{33}{32}$
29	44 8	15 52	80336	7	19664	91585	12	08415	11249	_5	88751	31
30	6 44 0	5 16 0	9.80351	8	10. 19649	9.91610	13	10.08390	10. 11259	5	9. 88741	30
$\begin{vmatrix} 31 \\ 32 \end{vmatrix}$	43 52 43 44	16 8 16 16	80366 80382	8 8	19634 19618	$91636 \\ 91662$	13 14	08364 08338	$11270 \\ 11280$	5 6	88730 88720	$\frac{29}{28}$
33	43 36	16 24	80397	8	19603	91688	14	08312	11291	6	88709	27
34	43 28	16 32	80412	9	19588	91713	15	08287	11301	$\frac{6}{2}$	88699	26
35 36	$\begin{bmatrix} 6 & 43 & 20 \\ 43 & 12 \end{bmatrix}$	5 16 40 16 48	9. 80428 80443	9	10. 19572 19557	9. 91739 91765	15 15	$\begin{array}{c} 10.08261 \\ 08235 \end{array}$	10.11312 11322	6	9.88688 88678	$\begin{array}{c} 25 \\ 24 \end{array}$
37	43 4	16 56	80458	9	19542	91791	16	08209	11332	6	88668	23.
38	42 56	17 4	80473	10	19527	91816	16	08184	11343	7	88657	22
39	$\frac{42\ 48}{6\ 42\ 40}$	$\frac{17 \ 12}{5 \ 17 \ 20}$	9.80504	$\frac{10}{10}$	19511 10, 19496	91842 9.91868	$\frac{17}{17}$	$\frac{08158}{10.08132}$	$\frac{11353}{10.11364}$	$\frac{7}{7}$	$\frac{88647}{9.88636}$	$\frac{21}{20}$
40 41	42 32	17 28	80519	10	19481	91893	18	08107	11374	7	88626	19
42	42 24	17 36	80534	11	19466	91919	18	08081	11385	7	88615	18
43 44	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c} 17 & 44 \\ 17 & 52 \end{array}$	80550 80565	11 11	19450 19435	91945 91971	18 19	$08055 \\ 08029$	11395 11406	8	88605 88594	17 16
45	$\frac{42}{6} \frac{3}{42} \frac{3}{0}$	5 18 0	9, 80580	$\frac{11}{12}$	10. 19420	9.91996	19	10. 08004	10. 11416	8	9.88584	15
46	41 52	18 8	80595	12	19405	92022	20	07978	11427	8	88573	14
47	$\begin{array}{c} 41 & 44 \\ 41 & 36 \end{array}$	18 16 18 24	80610 80625	12 12	19390 19375	$92048 \\ 92073$	$\frac{20}{21}$	$07952 \\ 07927$	11437 11448	8 8	88563 88552	13 12
48 49	41 36	18 32	80641	13	19379	92073	21	07927	11448	9	88542	11
50	6 41 20	5 18 40	9.80656	13	10. 19344	9.92125	21	10.07875	10.11469	9	9.88531	10
51	41 12	18 48	80671	13	19329	92150	22	07850	11479	9	88521	9
52 53	$\begin{array}{c cccc} 41 & 4 \\ 40 & 56 \end{array}$	$\begin{array}{ccc} 18 & 56 \\ 19 & 4 \end{array}$	80686 80701	13	19314 19299	$92176 \\ 92202$	22 23	07824 07798	11490 11501	9	88510 88499	8 7
54	40 48	19 12	80716	14	19284	92227	23	07773	11511	9	88489	6
55	6 40 40	5 19 20	9. 80731	14	10. 19269	9. 92253	24	10. 07747	10.11522	10	9. 88478	5
56 57	40 32 40 24	19 28 19 36	80746 80762	14	19254 19238	$92279 \\ 92304$	24 24	07721 07696	11532 11543	$\begin{array}{ c c }\hline 10\\10\\ \end{array}$	88468 88457	3
58	40 16	19 44	80777	15	19223	92330	25	07670	11553	10	88447	2
59	40 8	19 52	80792	15	19208	92356	25	07644	11564	10	88436	1
60	40 0	20 0	80807	15	19193	92381	26	07619	11575	10	88425	0
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
1290)		A		A	В		В	С		C	50°
Secreta In to												

_								. 0	72			
F	Page 812]				TAI	BLE 44.		1918	191	71		
				Log.		ngents, an	d Se	cants.		•		
400	I was a st	Hour P. M.	A Sine.	Diff.	A Cosecant.	B	Diff.	B	C		C	1390
М.	Hour A. M.					Tangent.	<u> </u>	Cotangent.		Diff.	Cosine.	М.
0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{bmatrix} 5&20&0\\20&8 \end{bmatrix}$	$9.80807 \\ 80822$	0	10. 19193 19178	9. 92381 92407	0	10. 07619 07593	$10.11575\\11585$	0	9. 88425 88415	60 59
$\frac{2}{3}$	39 44 39 36	$\begin{array}{ccc} 20 & 16 \\ 20 & 24 \end{array}$	80837 80852	0	$\frac{19163}{19148}$	92433 92458	1	$07567 \\ 07542$	11596 11606	0	88404	58
4	39 28	20 32	80867	_1_	19133	92484	_2	07516	11617	$\begin{array}{c c} 1 \\ 1 \end{array}$	88394 88383	57 56
5	6 39 20 39 12	5 20 40 20 48	9. 80882 80897	1 1	10. 19118 19103	$9.92510 \\ 92535$	3	10. 07490 07465	$10.11628\\11638$	$\frac{1}{1}$	9. 88372 88362	55 54
7	39 4	20 56	80912	2	19088	92561	3	07439	11649	1	88351	53
8 9	$\frac{38}{38} \frac{56}{48}$	$\begin{array}{cc} 21 & 4 \\ 21 & 12 \end{array}$	$80927 \\ 80942$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	19073 19058	$92587 \\ 92612$	3 4	07413 07388	$11660 \\ 11670$	$\begin{array}{ c c }\hline 1\\ 2\end{array}$	88340 88330	$\begin{array}{c c} 52 \\ 51 \end{array}$
10	6 38 40	5 21 20	9. 80957	$\frac{2}{3}$	10. 19043	9. 92638	4	10.07362	10. 11681	2	9.88319	50
$\begin{array}{c} 11 \\ 12 \end{array}$	$\frac{38}{38} \frac{32}{24}$	$\begin{array}{ccc} 21 & 28 \\ 21 & 36 \end{array}$	80972 80987	3	19028 19013	92663 92689	5 5	07337 07311	$11692 \\ 11702$	$\begin{pmatrix} 2 \\ 2 \end{pmatrix}$	88308 88298	49 48
13 14	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 21 & 44 \\ 21 & 52 \end{array}$	81002 81017	3	18998 18983	$92715 \\ 92740$	$\begin{vmatrix} 6 \\ 6 \end{vmatrix}$	07285 07260	$11713 \\ 11724$	$\begin{vmatrix} 2\\3 \end{vmatrix}$	88287 88276	47 46
15	6 38 0	5 22 0	9.81032	4	10. 18968	9. 92766	6	10.07234	10. 11734	3	9.88266	45
16 17	37 52 37 44	$\begin{array}{ccc} 22 & 8 \\ 22 & 16 \end{array}$	81047 81061	4	$18953 \\ 18939$	$92792 \\ 92817$	7 7	07208 07183	$11745 \\ 11756$	3 3	88255 88244	44 43
18	37 36 37 28	$\begin{array}{ccc} 22 & 24 \\ 22 & 32 \end{array}$	81076 81091	4 5	18924 18909	92843 92868	8	07157 07132	11766 11777	3	88234. 88223	42
$\frac{19}{20}$	6 37 20	5 22 40	9. 81106	$\frac{3}{5}$	10. 18894	9. 92894	9	10. 07106	10. 11788	$\frac{3}{4}$	$\frac{88223}{9.88212}$	$\frac{41}{40}$
$\begin{array}{c} 21 \\ 22 \end{array}$	37 12 37 4	$\begin{array}{cccc} 22 & 48 \\ 22 & 56 \end{array}$	81121 81136	5 5	$18879 \\ 18864$	92920 92945	9	07080 07055	11799 11809	4	88201 88191	39 38
23	36 56	23 4	81151	6	18849	92971	10	07029	11820	4	88180	37
$\frac{24}{25}$	36 48 6 36 40	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	81166 9. 81180	$\frac{6}{6}$	$\frac{18834}{10.18820}$	92996	$\frac{10}{11}$	07004 10.06978	$\frac{11831}{10.11842}$	$\frac{4}{4}$	88169 9. 88158	36 35
26	36 32	23 28	81195	6	18805	93048 93073	11	06952	11852	5	88148	34
27 28	36 24 36 16	$\begin{array}{cccc} 23 & 36 \\ 23 & 44 \end{array}$	$81210 \\ 81225$	7	$18790 \\ 18775$	93099	$\begin{array}{c c} 12 \\ 12 \end{array}$	06927 06901	$11863 \\ 11874$	5 5	88137 88126	$\begin{array}{c} 33 \\ 32 \end{array}$
$\frac{29}{30}$	36 8 6 36 0	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	81240 9.81254	$\frac{7}{7}$	$\frac{18760}{10.18746}$	93124	$\frac{12}{13}$	$\frac{06876}{10.06850}$	11885 10.11895	$\frac{5}{5}$	$\frac{88115}{9.88105}$	$\frac{31}{30}$
31	35 52	24 8	81269	8	18731	93175	13	06825	11906	6	88094	29
32 33	35 44 35 36	$\begin{array}{cccc} 24 & 16 \\ 24 & 24 \end{array}$	81284 81299	8	18716 18701	$93201 \\ 93227$	14 14	06799	$11917 \\ 11928$	$\begin{vmatrix} 6 \\ 6 \end{vmatrix}$	88083 88072	28 27
34	35 28	24 32	81314	8	18686	93252	14	06748	11939	6	88061	26
35 36	6 35 20 35 12	5 24 40 24 48	9. 81328 81343	9	10. 18672 18657	9. 93278 93303	15 15	10. 06722 06697	10. 11949 11960	6	9.88051 88040	25° 24
37 38	35 4 34 56	$\begin{array}{ccc} 24 & 56 \\ 25 & 4 \end{array}$	81358 81372	9	$18642 \\ 18628$	93329 93354	16 16	06671 06646	11971 11982	7	88029 88018	23 22
39	34 48	25 12	81387	10	18613	93380	17	06620	11993	7	88007	21
40 41	6 34 40 34 32	5 25 20 25 28	9. 81402 81417	10 10	10. 18598 18583	9. 93406 93431	17 17	10. 06594 06569	$10.\ 12004 \\ 12015$	7	9.87996 87985	$\begin{array}{c c} 20 \\ 19 \end{array}$
42	34 24	$25 \ 36$	81431	10	18569	93 4 57 93 4 82	18 18	06543 06518	$12025 \\ 12036$	8	87975	18
43 44	$\begin{array}{ccc} 34 & 16 \\ 34 & 8 \end{array}$	$\begin{array}{ccc} 25 & 44 \\ 25 & 52 \end{array}$	81446 81461	11 11	$18554 \\ 18539$	93508	19	06492	12047	8	87964 87953	17 16
45 46	$\begin{array}{cccc} 6 & 34 & 0 \\ & 33 & 52 \end{array}$	5 26 0 26 8	9. 81475 81490	11 11	10. 18525 18510	9. 93533 93559	19 20	10. 06467 06441	$10.12058 \\ 12069$	8 8	9. 87942 87931	15 14
47	33 44	26 1 6	81505	12	18495	93584	20	06416	12080	8	87920	13
48 49	33 36 33 28	$\begin{array}{ccc} 26 & 24 \\ 26 & 32 \end{array}$	$81519 \\ 81534$	12. 12	18481 18466	93610 ⁻ 93636	$\frac{20}{21}$	06390 06364	$\frac{12091}{12102}$	9	87909 87898	12 11
50	6 33 20	5 26 40	9.81549	12	10. 18451	9. 93661 93687	$\frac{21}{22}$	10.06339 06313	$10.12113 \\ 12123$	9	9.87887	10
51 52	$\begin{array}{ccc} 33 & 12 \\ 33 & 4 \end{array}$	$\begin{array}{ccc} 26 & 48 \\ 26 & 56 \end{array}$	81563 81578	13 13	$18437 \\ 18422$	93712	22	06288	12134	9	87877 87866	8
53 54	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 27 & 4 \\ 27 & 12 \end{array}$	81592 81607	13 13	18408 18393	93738 93763	23 23	06262 06237	$12145 \\ 12156$	10 10	87855 87844	7 6
55	6 32 40	5 27 20	9.81622	14	10. 18378	9. 93789	23	10.06211	10. 12167	10	9.87833	5
56 57	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{ccc} 27 & 28 \\ 27 & 36 \end{array}$	$81636 \\ 81651$	14 14	18364 : 18349	93814 93840	$\begin{bmatrix} 24 \\ 24 \end{bmatrix}$	06186 06160	$12178 \\ 12189$	$\begin{vmatrix} 10 \\ 10 \end{vmatrix}$	87822 87811	3
58	32 16	$\begin{array}{cccc} 27 & 44 \\ 27 & 52 \end{array}$	81665 81680	14 15	18335 18320	$93865 \\ 93891$	25 25	$06135 \\ 06109$	$\begin{array}{c} 12200 \\ 12211 \end{array}$	10 11	87800 87789	2
59 60	$\begin{array}{ccc} 32 & 8 \\ 32 & 0 \end{array}$	28 0	81694	15	18306	93916	26	06084	12222	11	87778	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
130	0		A		. A	В		В	С	''	С	490

Seconds of time	1:	2:	31	4 :	5 .	6 .	Ç:
Prop. parts of cols.	2	4	6	7	9	11	13
	3	6	10	13	16	19	22
	1	3	4	5	7	8	9

					TA	3LE 44.					[Page 8	13
				Log.	Sines, Tar	igents, an	d Sec	ants.				
410			A		. A	В		В	c		C	1380
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	6 32 0	5 28 0	9.81694	0	10. 18306	9.93916	0	10.06084	10. 12222	0	9.87778	60
$\frac{1}{2}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$81709 \\ 81723$	0	18291 18277	93942 93967	$\begin{vmatrix} 0 \\ 1 \end{vmatrix}$	06058	12233 12244	$\begin{vmatrix} 0 \\ 0 \end{vmatrix}$	87767 87756	59 58
3	31 36	28 24	81738	1	18262	93993	1	06007	12255	1	87745	57
$\frac{4}{5}$	$\frac{31}{6} \frac{28}{31} \frac{20}{20}$	$\begin{array}{ c c c c c c }\hline 28 & 32 \\ \hline 5 & 28 & 40 \\ \hline \end{array}$	81752 9.81767	$\frac{1}{1}$	18248 10. 18233	94018 9. 94044	$\frac{2}{2}$	$\frac{05982}{10.05956}$	$\frac{12266}{10.12277}$	$\frac{1}{1}$	$\frac{87734}{9.87723}$	$\frac{56}{55}$
6	31 12	28 48	81781	1	18219	94069	3	05931	12288	1	87712	54
8	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	28 56 29 4	81796 81810	$\begin{vmatrix} 2\\2 \end{vmatrix}$	18204 18190	$94095 \\ 94120$	3 3	05905 05880	$\begin{array}{c} 12299 \\ 12310 \end{array}$	1 1	87701 87690	53 52
9	30 48	29 12	81825	2	18175	94146	4	05854	12321	2	87679	51
10 11	6 30 40 30 32	5 29 20 29 28	9.81839 81854	3	10. 18161 18146	$9.94171 \\ 94197$	5	10. 05829 05803	$10.12332 \\ 12343$	$\begin{vmatrix} 2\\2 \end{vmatrix}$	9.87668 87657	50 49
12	30 24	29 36	81868	3	18132	94222	5	05778	12354	2	87646	48
13 14	30 16 30 8	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	81882 81897	3	18118 18103	$94248 \\ 94273$	6	$\begin{bmatrix} 05752 \\ 05727 \end{bmatrix}$	$12365 \\ 12376$	3	87635 87624	47 46
15	6 30 0	$\frac{25 \ 32}{5 \ 30 \ 0}$	9. 81911	4	10. 18089	9.94299	6	10,05701	10. 12387	3	9.87613	45
16	29 52 29 44	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	81926 81940	4	18074 18060	94324 94350	7 7	05676 05650	$12399 \\ 12410$	3 3	87601	44
17 18	29 44 29 36	30 16	81955	4	18045	94350 94375	8	05625	12421	3	87590 87579	43 42
19	29 28	30 32	81969	5	18031	94401	8	05599	12432	4	87568	41
$\begin{array}{c} 20 \\ 21 \end{array}$	6 29 20 29 12	5 30 40 30 48	9. 81983 81998	5 5	10. 18017 18002	9.94426 94452	8 9	10. 05574 05548	10.12443 12454	4 4	9. 87557 87546	40 39
22	29 4	30 56	82012	5	17988	94477	9	05523	12465	4	87535	38
23 24	$ \begin{array}{c cccc} 28 & 56 \\ 28 & 48 \end{array} $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	82026 82041	5	17974 17959	94503 94528	10	$05497 \ 05472$	$12476 \\ 12487$	4 4	87524 87513	37 36
25	6 28 40	5 31 20	9.82055	6	10.17945	9.94554	11	10.05446	10. 12499	5	9.87501	35
26 27	28 32 28 24	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	82069 82084	6	17931 17916	94579 • 94604	11 11	$05421 \\ 05396$	$12510 \\ 12521$	5 5	87490 87479	34 33
28	. 28 16	31 44	82098	7	17902	94630	12	05370	12532	5	87468	32
30	$\begin{array}{c cc} 28 & 8 \\ \hline 6 & 28 & 0 \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	82112 9.82126	$\frac{7}{7}$	$\frac{17888}{10.17874}$	94655	$\frac{12}{13}$	05345 10.05319	$\frac{12543}{10.12554}$	$\frac{5}{6}$	87457 9.87446	31 30
31	27 52	32 8	82141	7	17859	94706	13	05294	12566	6	87434	29
32 33	27 44 27 36	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$82155^{\circ} 82169$	8 8	17845 17831	94732 94757	14	$05268 \\ 05243$	$12577 \\ 12588$	6	87423 87412	28 27
34	27 28	32 32	82184	8	17816	94783	14	05217	12599	6	87401	26
35 36	6 27 20	5 32 40 32 48	9. 82198 82212	8 9	10.17802	9. 94808 94834	15 15	10.05192	$10.\ 12610 \\ 12622$	7	9.87390	25
37	$\begin{array}{ccc} 27 & 12 \\ 27 & 4 \end{array}$	$\begin{array}{c} 32 \ 48 \\ 32 \ 56 \end{array}$	82226	9	17788 17774	94859	16	05166 05141	12622	7	87378 87367	24 23
38 39	26 56 26 48	33 4 33 12	82240 82255	9	17760 17745	94884 94910	16 17	05116 05090	$12644 \\ 12655$	7 7	87356 87345	22 21
40	6 26 40	5 33 20	9.82269	10	10. 17731	9. 94935	17	10. 05065	10. 12666	7	9.87334	$\frac{21}{20}$
41	26 32	33 28	82283	10	17717	94961	17	05039	12678	8	87322	19
42 43	26 24 26 16	33 36 33 44	$82297 \\ 82311$	10 10	17703 17689	94986 95012	18	05014 04988	$12689 \\ 12700$	8	87311 87300	18 17
44	26 8	33 52	82326	10	17674	95037	19	04963	12712	8	87288	16
45 46	$\begin{bmatrix} 6 & 26 & 0 \\ 25 & 52 \end{bmatrix}$	5 34 · 0 34 · 8	9. 82340 82354	11 11	10. 17660 17646	9. 95062 95088	19 20	10. 04938 04912	$10.12723 \\ 12734$	8 9	9.87277 87266	15 14
47	25 44	34 16	82368	11	17632	95113	20	04887	12745	9	87255	13
48 49	25 36 25 28	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	82382 82396	11 12	17618 17604	95139 95164	20 21	04861 04836	$12757 \\ 12768$	9	87243 87232	12 11
50	6 25 20	5 34 40	9.82410	12	10. 17590	9.95190	21	10.04810	10. 12779	9	9.87221	10
51 52	$\begin{array}{c cccc} 25 & 12 & \\ 25 & 4 & \\ \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	82424 82439	$\begin{array}{c c} 12 \\ 12 \end{array}$	$17576 \\ 17561$	95215 95240	22 22	$04785 \\ 04760$	12791 12802	10 10	87209 87198	9 8
53	24 56	35 4	82453	13	17547	95266	22	04734	12813	10	87187	7
54 55	24 48 6 24 40	35 12 5 35 20	82467 9.82481	$\frac{13}{13}$	$\frac{17533}{10.17519}$	95291 9.95317	$\frac{23}{23}$	04709 10. 04683	$\frac{12825}{10.12836}$	10	87175	6
56	24 32	35 28	82495	13	17505	95342	24	04658	12847	10	9. 87164 87153	5
57 58	24 24 24 16	35 36 35 44	82509 82523	14 14	17491 17477	95368 95393	24 25	$04632 \\ 04607$	$12859 \\ 12870$	11 11	87141 87130	3 2
59	24 8	35 52	82537	14	17463	95418	25	04582	12881	11	87119	1
60	24 0	36 0	82551	14	17449	95444	25	04556	12893	11	87107	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
1310			A		A	В		В	C		С	480

Seconds of time	18	2= •	3s	48	58	6ª	7s
Prop. parts of cols. ABC	2	4	5	7	9	11	12
	3	6	10	13	16	19	22
	2	3	4	6	7	8	10

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P	age 814]				TA	BLE 44.						
420			A	Log.	Sines, Tar	ngents, and B	l Sec	ants. B	С		C	1379
M.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.		Diff.	Cosine.	М.
$\begin{bmatrix} 0 \\ 1 \\ 2 \\ 3 \end{bmatrix}$	6 24 0 23 52 23 44 23 36	5 36 0 36 8 36 16 36 24	9. 82551 82565 82579 82593	0 0 0 1	10. 17449 17435 17421 17407	9. 95444 95469 95495 95520	0 0 1 1	10. 04556 04531 04505 04480	10. 12893 12904 12915 12927	0 0 0 1	9.87107 87096 87085 87073	60 59 58 57
5 6 7 8	23 28 6 23 20 23 12 23 4 22 56	36 32 5 36 40 36 48 36 56 37 4	82607 9. 82621 82635 82649 82663	$\begin{array}{ c c }\hline 1\\ 1\\ 1\\ 2\\ 2\\ \end{array}$	17393 10. 17379 17365 17351 17337	$\begin{array}{ c c c }\hline 95545\\ 9.95571\\ 95596\\ 95622\\ 95647\\ \end{array}$	$\begin{bmatrix} 2\\ 2\\ 3\\ 3\\ 3 \end{bmatrix}$	$\begin{array}{r} 04455 \\ \hline 10.04429 \\ 04404 \\ 04378 \\ 04353 \\ \end{array}$	$ \begin{array}{r} 12938 \\ 10.12950 \\ 12961 \\ 12972 \\ 12984 \end{array} $	$\begin{array}{ c c }\hline 1\\1\\1\\1\\2\\\end{array}$	87062 9. 87050 87039 87028 87016	56 55 54 53 52
$ \begin{array}{r} 9 \\ \hline 10 \\ 11 \\ 12 \\ 13 \end{array} $	$\begin{array}{r} 22 \ 48 \\ \hline 6 \ 22 \ 40 \\ 22 \ 32 \\ 22 \ 24 \\ 22 \ 16 \\ \end{array}$	37 12 5 37 20 37 28 37 36 37 44	82677 9. 82691 82705 82719 82733	$ \begin{array}{ c c c c } \hline 2 \\ 3 \\ 3 \\ 3 \end{array} $	$\begin{array}{r} 17323 \\ \hline 10.17309 \\ 17295 \\ 17281 \\ 17267 \end{array}$	95672 9.95698 95723 95748 95774	4 5 5 5 5	$\begin{array}{r} 04328 \\ \hline 10.04302 \\ 04277 \\ 04252 \\ 04226 \\ \end{array}$	12995 10. 13007 13018 13030 13041	$\begin{bmatrix} 2\\ 2\\ 2\\ 2\\ 3 \end{bmatrix}$	87005 9. 86993 86982 86970 86959	51 50 49 48 47
14 15 16 17 18 19	22 8 6 22 0 21 52 21 44 21 36 21 28	37 52 5 38 0 38 8 38 16 38 24 38 32	82747 9. 82761 82775 82788 82802 82816	$\begin{bmatrix} 3 \\ 4 \\ 4 \\ 4 \\ 4 \end{bmatrix}$	$ \begin{array}{r} 17253 \\ \hline 10.17239 \\ 17225 \\ 17212 \\ 17198 \\ 17184 \end{array} $	95799 9. 95825 95850 95875 95901 95926	$\begin{bmatrix} \frac{6}{6} \\ 7 \\ 7 \\ 8 \\ 8 \end{bmatrix}$	$\begin{array}{r} 04201 \\ \hline 10.04175 \\ 04150 \\ 04125 \\ 04099 \\ 04074 \\ \end{array}$	13053 10. 13064 13076 13087 13098 13110	3 3 3 3 4	86947 9. 86936 86924 86902 86900	46 45 44 43 42
20 21 22 23 24	6 21 20 21 12 21 4 20 56 20 48	5 38 40 38 48 38 56 39 4 39 12	9. 82816 9. 82830 82844 82858 82872 82885	5 5 5 5 6	$\begin{array}{r} 17184 \\ \hline 10.17170 \\ 17156 \\ 17142 \\ 17128 \\ 17115 \end{array}$	95926 9. 95952 95977 96002 96028 96053	8 9 9 10 10	10. 04048 04023 03998 03972 03947	13110 10. 13121 13133 13145 13156 13168	4 4 4 5	86890 9.86879 86867 86855 86844 86832	41 40 39 38 37 36
25 26 27 28 29	6 20 40 20 32 20 24 20 16 20 8	5 39 20 39 28 39 36 39 44 39 52	9. 82899 82913 82927 82941 82955	6 6 6 6 7	10. 17101 17087 17073 17059 17045	9. 96078 96104 96129 96155 96180	11 11 11 12 12	10. 03922 03896 03871 03845 03820	10. 13179 13191 13202 13214 13225	5 5 5 5 6	9. 86821 86809 86798 86786 86775	35 34 33 32 31
30 31 32 33 34	6 20 0 19 52 19 44 19 36 19 28	5 40 0 40 8 40 16 40 24 40 32	9. 82968 82982 82996 83010 83023	7 7 7 8 8	10. 17032 17018 17004 16990 16977	9. 96205 96231 96256 96281 96307	13 13 14 14 14 14	10. 03795 03769 03744 03719 03693	10. 13237 13248 13260 13272 132 § 3	6 6 6 7	9. 86763 86752 86740 86728 86717	30 29 28 27 26
35 36 37 38 39	6 19 20 19 12 19 4 18 56 18 48	5 40 40 40 48 40 56 41 4 41 12	9. 83037 83051 83065 83078 83092	8 8 8 9 9	10. 16963 16949 16935 16922 16908	9. 96332 96357 96383 96408 96433	15 15 16 16 16	10. 03668 03643 03617 03592 03567	10. 13295 13306 13318 13330 13341	7 7 7 7 8	9.86705 86694 86682 86670 86659	25 24 23 22 21
40 41 42 43 44	6 18 40 18 32 18 24 18 16 18 8	5 41 20 41 28 41 36 41 44 41 52	9. 83106 83120 83133 83147 83161	9 9 10 10 10	10. 16894 16880 16867 16853 16839	9. 96459 96484 96510 96535 96560	17 17 18 18 19	10. 03541 03516 03490 03465 03440	10. 13353 13365 13376 13388 13400	8 8 8 8	9.86647 86635 86624 86612 86600	20 19 18 17 16
45 46 47 48 49	6 18 0 17 52 17 44 17 36 17 28	5 42 0 42 8 42 16 42 24 42 32	9. 83174 83188 83202 83215 83229	10 11 11 11 11 11	10. 16826 16812 16798 16785 16771	9. 96586 96611 96636 96662 96687	19 19 20 20 21	10. 03414 03389 03364 03338 03313	10. 13411 13423 13435 13446 13458	9 9 9 9	9. 86589 86577 86565 86554 86542	15 14 13 12 11
50 51 52 53 54	6 17 20 17 12 17 4 16 56 16 48	5 42 40 42 48 42 56 43 4 43 12	9. 83242 83256 83270 83283 83297	11 12 12 12 12 12	10. 16758 16744 16730 16717 16703	9. 96712 96738 96763 96788 96814	22 22 22 23	10. 03288 03262 03237 03212 03186	10. 13470 13482 13493 13505 13517	10 10 10 10 10	9. 86530 86518 86507 86495 86483	10 9 8 7 6
55 56 57 58 59 60	6 16 40 16 32 16 24 16 16 16 8 16 0	5 43 20 43 28 43 36 43 44 43 52 44 0	9. 83310 83324 83338 83351 83365 83378	13 13 13 13 14 14	10. 16690 16676 16662 16649 16635 16622	9. 96839 96864 96890 96915 96940 96966	23 24 24 25 25 25 25	10. 03161 03136 03110 03085 03060 03034	10. 13528 13540 13552 13564 13575 13587	11 11 11 11 11 11 12	9. 86472 86460 86448 86436 86425 86413	5 4 3 2 1 0
М.	Hour P.M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.		Cosecant.	Diff.	Sine.	M.
132			A		· A	В	•	В	C		C	470
W 15.W	Telephone action and property of	-				0, 3,						

Seconds of time	1.	25	38	41	58	6ª	78
Prop. parts of cols. $\left\{egin{array}{c} A \\ B \\ C \end{array}\right.$	2	3	5	7	9	10	12
	3	6	10	13	16	19	22
	1	3	4	6	7	9	10

1					TAI	3LE 44.		; ······			[Page 8	15
				Log.	Sines, Tar	ngents, and	d Sec	ants.				
430			A	1	A	В	,	В	С		С	136°
М.	Hour A. M.	Hour P. M.	Sine.	Diff.	Cosecant.	Tangent.	Diff.	Cotangent.	Secant.	Diff.	Cosine.	М.
0	6 16 0	5 44 0 44 8	9. 83378 83392	0	10. 16622 16608	9. 96966 96991	0	10. 03034 03009	10. 13587 13599	0	9.86413 86401	60 59
$\frac{1}{2}$	15 52 15 44	44 16	83405	ő	16595	97016	1	02984	13611	ő	86389	58
3	15 36 15 28	44 24 44 32	83419 83432	1 1	$16581 \\ 16568$	$97042 \\ 97067$	$\frac{1}{2}$	02958 02933	13623 13634	1	86377 86366	57 56
$\frac{4}{5}$	6 15 20	5 44 40	9, 83446	$\frac{1}{1}$	10. 16554	9,97092	$\frac{2}{2}$	$\frac{02933}{10.02908}$	10. 13646	1	$\frac{86354}{9.86354}$	$\frac{55}{55}$
6	15 12	44 48	83459	1	16541	97118	3	02882	13658	1 1	86342	54 52
8	$15 ext{ } 4 \\ 14 ext{ } 56$	$\begin{array}{ccc} 44 & 56 \\ 45 & 4 \end{array}$	83473 83486	$\frac{2}{2}$	16527 - 16514	97143 97168	3	$02857 \ 02832$	$13670 \\ 13682$	2	86330 86318	53 52
9	14 48	45 12	83500	2	16500	97193	4	02807	13694	2	86306	51
10 11	6 14 40 14 32	5 45 20 45 28	$9.83513 \\ 83527$	$\frac{2}{2}$	10. 16487 16473	9.97219 97244	4 5	$\begin{array}{c} 10.02781 \\ 02756 \end{array}$	10. 13705 13717	$\frac{2}{2}$	9.86295 86283	50 49
12	14 24	45 36	83540	3	16460	97269	5	02731	13729	2	86271	48
13 14	14 16 14 8	$\begin{array}{c c} 45 & 44 \\ 45 & 52 \end{array}$	$83554 \\ 83567$	3	16446 16433	97295 97320	5 6	$02705 \\ 02680$	$13741 \\ 13753$	3	$86259 \\ 86247$	$\begin{array}{c} 47 \\ 46 \end{array}$
15	6 14 0	5 46 0	9.83581	3	10. 16419	9.97345	6	10.02655	10. 13765	3	9.86235	45
16 17	13 52 13 44	46 8 46 16	83594 83608	4	$16406 \\ 16392$	97371 97396	7 7	02629 02604	13777 13789	3	86223 86211	44 43.
18	13 36	46 24	83621	4	16379	97421	8	02579	13800	4	86200	42
19	13 28	46 32	9, 83648	4	$\frac{16366}{10.16352}$	97447	$\frac{8}{8}$	$\frac{02553}{10.02528}$	13812	4	86188	$\frac{41}{40}$
20 21	6 13 20 13 12	5 46 40 46 48	83661	4 5	16339	9.97472 97497	9	02503	$10.13824\\13836$	4	$9.86176 \\ 86164$	40 39
22	13 4	46 56	83674	5	16326	97523	9	02477	13848	4.	86152	38
23 24	12 56 12 48	$\begin{array}{ccc} 47 & 4 \\ 47 & 12 \end{array}$	83688 83701	5 5	$16312 \\ 16299$	$97548 \\ 97573$	10 10	$02452 \\ 02427$	$13860 \\ 13872$	5 5	86140 86128	37 36
25	6 12 40	5 47 20	9.83715	6	10. 16285	9, 97598	11	10. 02402	10. 13884	5.	9.86116	35
$\frac{26}{27}$	$12 32 \\ 12 24$	47 28 47 36	83728 83741	6	$16272 \\ 16259$	$97624 \\ 97649$	11 11	$02376 \\ 02351$	13896 13908	5 5	86104° 86092	34 33
28	12 16	47 44	83755	6	16245	97674	12	02326	13920	6	86080	32
$\frac{29}{30}$	$\begin{array}{c cc} 12 & 8 \\ \hline 6 & 12 & 0 \end{array}$	$\frac{47}{5} \frac{52}{48} \frac{1}{0}$	83768 9. 83781	$-\frac{6}{7}$	16232 10. 16219	$\frac{97700}{9.97725}$	$\frac{12}{13}$	$\frac{02300}{10.02275}$	13932 10. 13944	$\frac{-6}{6}$	$\frac{86068}{9.86056}$	$\frac{31}{30}$
31	11 52	48 8	83795	7	16205	97750	13	02250	13956	6	86044	29
32 33	11 44 11 36	$\frac{48}{48} \frac{16}{24}$	83808 83821	7 7	$16192 \\ 16179 -$	97776 97801	13 14	02224 02199	13968 13980	6 7	86032 86020	28· 27
34	11 28	48 32	83834	8	16166	97826	14	02174	13992	7	86008	26
35 36	6 11 20 11 12	5 48 40 48 48	9.83848	8	10. 16152	9.97851	15	10. 02149	10. 14004	7	9.85996	25
37	11 12	48 56	83861 83874	8	$16139 \\ 16126$	$97877 \\ 97902$	15 16	02123 02098	$14016 \\ 14028$	7	85984 85972	24 23
38 39	10 56 10 48	49 4 49 12	83887 83901	8 9	16113 16099	97927 97953	16 16	02073 02047	$14040 \\ 14052$	8	85960	22
40	6 10 40	5 49 20	9. 83914	$\frac{3}{9}$	10. 16086	9, 97978	$\frac{10}{17}$	$\frac{02047}{10.02022}$	10, 14064	8	85948 9. 85936	$\frac{21}{20}$
41	10 32	49 28	83927	9	16073	98003	. 17	01997	14076	8	85924	19
42 43	10 24 10 16	49 36 49 44	83940 83954	9	16060 16046	98029 98054	18 18	01971 01946	14088 14100	8 9	85912 85900	18 17
44	10 8	49 52	83967	10	16033	98079	19	01921	14112	9	85888	16
45 46	$\begin{bmatrix} 6 & 10 & 0 \\ 9 & 52 \end{bmatrix}$	5 50 0 50 8	9. 83980 83993	10 10	$10.\ 16020 \\ 16007$	9. 98104 98130	19 19	10. 01896 01870	10. 14124 14136	9	9. 85876	15 14
47	9 44	50 16	84006	10	15994	98155	20	01845	14149	9	85864 85851	13
48 49	$\begin{array}{c} 9 \ 36 \\ 9 \ 28 \end{array}$	50 24 1 50 32	84020 84033	11	15980 15967	98180 98206	$\frac{20}{21}$	$01820 \\ 01794$	$14161 \\ 14173$	10 10	85839 85827	12 11
50	6 9 20	5 50 40	9.84046	11	10. 15954	9. 98231	21	10.01769	10. 14185	10	9.85815	10
51 52	$\begin{array}{c c}9&12\\9&4\end{array}$	50 48 50 56	84059 84072	$\begin{array}{c} 11 \\ 12 \end{array}$	15941 15928	98256 98281	22 22	01744 01719	14197 14209	10	85803	9
53	8 56	51 4	84085	12	15915	98307	22	01693	14221	10 11	85791 85779	8 7
54 55	8 48	$\frac{51 \ 12}{5 \ 51 \ 20}$	84098	12	15902	98332	$\frac{23}{92}$	01668	14234,	11	85766	6
56	6 8 40 8 32	51 28	9. 84112 84125	12 12	10. 15888 15875	9. 98357 98383	$\begin{array}{c} 23 \\ 24 \end{array}$	10. 01643 01617	$10.14246 \\ 14258$	11 11	9. 85754 85742	5 4
57	8 24	51 36	84138	13	15862	98408	24	91592	14270	11	85730	3
58 59	8 16 8 8	51 44 51 52	84151 84164	13 13	15849 15836	98433 98458	$\begin{vmatrix} 24 \\ 25 \end{vmatrix}$	$01567 \ 01542$	$14282 \\ 14294$	$\begin{vmatrix} 12 \\ 12 \end{vmatrix}$	85718 85706	$\begin{bmatrix} 2 \\ 1 \end{bmatrix}$
60	8 0	52 0	84177	13	15823	98484	25	01516	14307	12	85693	Ô
М.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	M.
1330			Λ		À	В		В	C		С	460
-			THE PARTY AND PERSONS ASSESSED.	-			San Darkson					and the same

Seconds of time	10	28	3s	4.	5s	Gs.	7s
Prop. parts of cols. ABC	2	3	5	7	8	10	12
	3	6	9	13	16	19	22
	2	3	5	6	8	9	11

P	age 816]				TAI	BLE 44.						
				Log.		igents, and	l Sec					
440	Trans. M	Hour P. M.	A Sine.	Diff.	A Cosecant.	B Tangent.	Diff.	B Cotangent	C	Diff.	C Cosine.	135°
М.	Hour A. M.			_					Seçant.	-		_
$\begin{array}{c} 0 \\ 1 \end{array}$	$\begin{bmatrix} 6 & 8 & 0 \\ 7 & 52 \end{bmatrix}$	$\begin{bmatrix} 5 & 52 & 0 \\ 52 & 8 \end{bmatrix}$	9.84177 84190	0	10. 15823 15810	9. 98484 98509	0	10. 01516 01491	10. 14307 14319	0	9. 85693 85681	60 59
$\frac{2}{3}$	7 44 7 36	$52\ 16 \\ 52\ 24$	84203 84216	0	15797 15784	$98534 \\ 98560$	1	01466 01440	$14331 \\ 14343$	0	85669 85657	58 57
4	7 28	$52 \ 32$	84229	1	15771	98585	$\frac{1}{2}$	01415	14355	1	85645	56
5 6	6 7 20 7 12	5 52 40 52 48	$\begin{array}{c} 9.84242 \\ 84255 \end{array}$	1	$10.15758 \\ 15745$	9.98610 98635	3	$10.01390 \\ 01365$	$10.14368 \\ 14380$	1	9. 85632 85620	55 54
7	7 4	52 56	84269	2	15731	98661	3	01339	14392	1	85608	53
8 9	$\begin{array}{cccc} 6 & 56 \\ 6 & 48 \end{array}$	$\begin{array}{cc} 53 & 4 \\ 53 & 12 \end{array}$	$84282 \\ 84295$	$\frac{2}{2}$	15718 15705	98686 98711	3 4	01314 01289	14404 14417	$\frac{2}{2}$	85596 85583	52 51
10	6 6 40	5 53 20	9.84308	2	10. 15692	9. 98737	4	10.01263	10. 14429	2	9.85571	50
$\begin{array}{c c} 11 \\ 12 \end{array}$	$\begin{array}{ccc} 6 & 32 \\ 6 & 24 \end{array}$	53 28 53 36	$84321 \\ 84334$	2 3	$15679 \\ 15666$	$98762 \\ 98787$	5 5	$01238 \\ 01213$	14441 14453	2 2	85559 85547	49 48
13 14	$\begin{array}{cc} 6 & 16 \\ 6 & 8 \end{array}$	53 44 53 52	84347 84360	3 3	$15653 \\ 15640$	98812 98838	-5 6	$01188 \\ 01162$	$14466 \\ 14478$	3	85534 85522	47 46
$\frac{11}{15}$	6 6 0	5 54 0	9.84373	3	$\frac{15040}{10.15627}$	9. 98863	6	10.01137	10. 14490	3	9.85510	45
$\begin{vmatrix} 16 \\ 17 \end{vmatrix}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	54 8 54 16	84385 84398	3 4	$15615 \\ 15602$	98888 98913	7 7	01112 01087	14503 14515	3 4	85497 85485	44 43
18	5 36	54 24	84411	4	15589	98939	8	01061	14527	4	85473	42
$\frac{19}{20}$	$\frac{5}{6} \frac{28}{5} \frac{20}{20}$	54 32 5 54 40	84424 9, 84437	$\frac{4}{4}$	15576 10. 15563	98964 9. 98989	$\frac{8}{8}$	01036 10. 01011	14540 10. 14552	$\frac{4}{4}$	$\frac{85460}{9.85448}$	$\frac{41}{40}$
$\frac{21}{22}$	5 12	54 48	84450	5	15550	99015	9	00985	14564	4	85436	39
23	$\begin{array}{cc}5&4\\4&56\end{array}$	54 56 55 4	84463 84476	5	15537 15524	99040 99065	9 10	00960 00935	14577 14589	5 5	85423 85411	38 37
$\frac{24}{25}$	$\begin{array}{c c} 4 & 48 \\ \hline 6 & 4 & 40 \end{array}$	55 12 5 55 20	9. 84489 9. 84502	$\frac{5}{5}$	$\frac{15511}{10.15498}$	99090 9.99116	$\frac{10}{11}$	00910 10.00884	14601 10.14614	$\frac{5}{5}$	85399	36
26	4 32	55 28	84515	6	15485	99141	11	00859	14626	5	9. 85386 85374	34
27 28	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	55 36 55 44	$84528 \\ 84540$	6	$15472 \\ 15460$	99166 99191	$\begin{array}{c c} 11 \\ 12 \end{array}$	00834	$14639 \\ 14651$	6	85361 85349	33 32
29	4 8	55 52	84553	6	15447	99217	12	00783	14663	6	85337	31
30 31	$\begin{array}{cccc} 6 & 4 & 0 \\ & 3 & 52 \end{array}$	5 56 0 56 8	9.84566 84579	6 7	10. 15434 15421	9.99242 99267	13 13	10. 00758 00733	10. 14676 14688	. 6	9. 85324 85312	30 29
32	3 44	56 16	84592	7 7	15408	99293	13	00707	14701	7	85299	28
33 34	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{r} 56 \ 24 \\ 56 \ 32 \end{array} $	84605 84618	7	$15395 \\ 15382$	99318 99343	14 14	00682 00657	$14713 \\ 14726$	7	85287 85274	27 26
35 36	6 3 20 3 12	5 56 40 56 48	9.84630 84643	8	10. 15370 15357	9. 99368 99394	15 15	10.00632 00606	$10.14738 \\ 14750$	7 7	9.85262	$\begin{array}{c} 25 \\ 24 \end{array}$
37	3 4	56 56	84656	8	15344	99419	16	00581	14763	8	$\frac{85250}{85237}$	23
38 39	$\begin{array}{cc}2&56\\2&48\end{array}$	$\begin{array}{cccc} 57 & 4 & 57 & 12$	$84669 \\ 84682$	8	15331 15318	99444 99469	16 16	00556 00531	14775 14788	8	85225 85212	22 21
40	6 2 40	5 57 20	9.84694	9	10.15306	9.99495	17	10.00505	10. 14800	8	9.85200	20
41 42	$\begin{array}{cccc} 2 & 32 \\ 2 & 24 \end{array}$	57 28 57 36	$84707 \\ 84720$	9	15293 15280	99520 99545	17 18	00480 00455	14813 14825	8 9	85187 85175	19 18
43 44	$\begin{bmatrix} 2 & 16 \\ 2 & 8 \end{bmatrix}$	57 44 57 52	84733 84745	9	$\begin{array}{c} 15267 \\ 15255 \end{array}$	99570 99596	18 19	00430 00404	14838 14850	9	85162	17 16
45	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	5 58 0	9.84758	$\frac{3}{10}$	10. 15242	9. 99621	$\frac{19}{19}$	10. 00379	10. 14863	9	$\frac{85150}{9.85137}$	15
46 47	$\begin{array}{c c} 1 & 52 \\ 1 & 44 \end{array}$	58 8 58 16	84771 84784	10 10	$15229 \\ 15216$	99646 99672	19 20	00354 00328	14875 14888	10	85125 85112	14 13
48	1 36	58 24	84796	10	15204	99697	20	00303	14900	10	85100	12
$\frac{49}{50}$	$\frac{1}{6} \frac{28}{120}$	58 32 5 58 40	84809 9,84822	$\frac{11}{11}$	15191 10. 15178	99722	$\frac{21}{21}$	$\frac{00278}{10.00253}$	14913 10. 14926	$\frac{10}{10}$	$\frac{85087}{9.85074}$	$\frac{11}{10}$
51	1 12	58 48	84835	11	15165	99773	21	00227	14938	11	85062	9
52 53	$\begin{array}{cc}1&4\\0&56\end{array}$	$\begin{array}{cc} 58 & 56 \\ 59 & 4 \end{array}$	84847 84860	11 11	15153 15140	99798 99823	$\begin{array}{c} 22 \\ 22 \end{array}$	00202 00177	14951 14963	11 11	85049 85037	8 7
54	0 48	59 12	84873	12	15127	99848	23	00152	14976	11	85024	6
55 56	6 0 40 0 32	5 59 20 59 28	9. 84885 84898	12 12	$10.\ 15115 \\ 15102$	9. 99874 99899	23 24	10. 00126 00101	$10.14988 \\ 15001$	11 12	9. 85012 84999	5 4
57 58	0 24 0 16	59 36 59 44	84911 84923	$\frac{12}{12}$	15089 ·15077	99924 99949	24 24	00076 00051	$15014 \\ 15026$	$\begin{vmatrix} 12 \\ 12 \end{vmatrix}$	84986 84974	$\frac{3}{2}$
59	0 8	59 52	84936	13	15064	99975	25	00025	15039	12	84961	1
60	0 0	6 0 0	.84949	13	15051	10. 00000	25	00000	15051	12	84949	0
M.	Hour P. M.	Hour A. M.	Cosine.	Diff.	Secant.	Cotangent.	Diff.	Tangent.	Cosecant.	Diff.	Sine.	М.
1340	, W (4))		A		A	В		В	С		С	450
		5	Seconds of ti	ime	15	24 33	45	58 68	75			

Prop. parts of cols. $\begin{cases} A \\ B \\ C \end{cases}$

TABLE 45.

	Oh Om	00.0/	Oh am	0° 30′	Oh /m	1° 0′	0h 6m	10 20/	0h 8m	20 0/	1
			i								
8 /	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0 0	-00	0.00000	5.27963	0.00002	5 .88168	0.00008	6.23385	0.00017	6.48371	0.00039	60
2 4+ 1	1.72333 2.32539	.00000	.29399 .30811	.00002	.88889 .89604	.00008	.23866	.00017	.48732 $.49092$.00031	58 56
4+ 1	2.67757	.00000	.32201	.00002	.90313	.00008	.24821	.00018	.49450	.00031	54
8+2	2.92745	0.00000	5.33569	0.00002	5.91016	0.00008	6.25294	0.00018	6.49807	0.00031	52
10	3.12127	.00000	.34916	.00002	.91714	.00008	.25765	.00018	.50162	.00032	50
12+ 3 14	3.27963 3.41353	.00000	.36242 .37548	.00002	.92406 .93093	.00008	.26233 $.26699$.00018 .00018	.50516 .50868	.00032	48 46
16+ 4	3.52951	0.00000	5.38835	0.00002	5.93774	0.00000	6.27162	0.00019	6.51219	0.00033	44
18	3.63182	.00000	.40103	.00003	.94450	.00009	.27623	.00019	.51568	.00033	42
20+ 5	3.72333 3.80612	.00000	.41352 .42585	.00003	.95121 .95786	.00009	.28081 $.28537$.00019 .00019	.51916 .52263	.00033 .00033	40 38
$\frac{22}{24+6}$	3.88169	0.00000	5.43799	0.00003	5.96447	0.00000	$\frac{.28991}{6.28991}$	0.00019	$\frac{6.52608}{6.52608}$	0.00034	36
26	3.95122	.00000	.44997	.00003	.97102	.00009	29442	.00020	.52952	.00034	34
28+7	4.01559	.00000	.46179	.00003	.97753	.00010	.29891	.00020	.53295	.00034	32
30 32+ 8	4.07551 4.13157	0.00000	.47345 5.43496	0.00003	.98399 5.99040	0.00010	30337 6.30781	0.00020	0.53636 0.53976	.00034 0.00035	30 28
34	.18423	.00000	.49631	.00003	5.99676	.00010	.31223	.00021	.54315	.00035	26
36+ 9	.23388	.00000	.50752	.00003	6.00308	.00010	.31663	.00021	.54652	.00035	24
38	.28084	.00000	-51858	.00003	.00935	.00010	.32101	.00021	.54988	.00035	22
40+10	4.32539	0.00000	5.52951	0.00003	6.01557	.00010	6.32536 $.32969$	0.00021	6.55323 $.55656$	0.00036 .00036	20 18
42 44+11	.36777 .40818	.00000	.54030 .55095	.00003	.02176 .02789	.00011	.33400	.00022	.55988	.00036	16
46	.44679	.00000	.56148	.00004	.03399	.00011	.33829	.00022	.56319	.00037	14
48+12	4.48375	0.00000	5.57189	0.00004	6.04004	0.00011	6.34256	0.00022	6.56649	0.00937	12
50 52+13	.51921 .55328	.00000	.58216 .59232	.00004	.04605	.00911	.34681 .35103	.00022	.56977 $.57304$.00037	10 8
54	.58606	.00000	.60236	.00004	.05795	.00011	.35524	.00023	.57630	.00038	6
56+14	4.61765	0.00000	5.61229	0.00004	6.06384	0.00012	6.35943	0.00023	6.57955	0.00038	4
58	4.64813	0.00000	5.62211	0.00004	6.06969	0.00012	6.36359	0.00023	6.58278	0.00038	2
	23h	59m	23h	57m	23h	55m	23h	5.3m	23h	51m	
g /	0h 1m	0°.0′	0h 3m	0° 30′	0h 5m	1° 0′	Oh 7m	1° 30′	0h 9m	2° 0′	<u>.</u>
0							i	1			s 60
8 / 0+15	0h 1m 4.67757 .70605	0°.0′ 0.00000 .00000	0h 3m 5.63181 .64141	0° 30′ 0.00004 .00004	$\frac{0h\ 5^{m}}{6.07550}$ $.08127$	1° 0′ 0.00012 .00012	$\frac{0h\ 7m}{6.36774}$.37186	1° 30′ 0.00023 .00924	0h 9m 6.58600 .58921	2° 0′ 0.00039 .00039	s 60 58
0+15 2 4+16	4.67757 .70605 .73363	0.00000 .00000 .00001	5.63181 .64141 .65090	0.00004 .00004 .00004	6.07550 .08127 .08700	0.00012 .00012 .00012	6.36774 .37186 .37597	0.00023 .00924 .00024	6.58600 .58921 .59241	0.00039 .00039 .00039	60 58 56
0+15 2 4+16 6	4.67757 .70605 .73363 .76036	0.00000 .00000 .00001 .00001	5.63181 .64141 .65090 .66029	0.00004 .00004 .00004 .00005	6.07550 .08127 .08700 .09270	0.00012 .00012 .00012 .00012	6.36774 .37186 .37597 .38006	0.00023 .00924 .00024 .00924	6.58600 .58921 .59241 .59560	0.00039 .00039 .00039	60 58 56 54
0+15 2 4+16 6 8+17	4.67757 .70605 .73363 .76036 4.78629	0.00000 .00000 .00001 .00001	5.63181 .64141 .65090 .66029 5.66958	0.00004 .00004 .00005 0.00005	6.07550 .08127 .08700 .09270 6.09836	0.00012 .00012 .00012 .00013	6.36774 .37186 .37597 .38006 6.38412	0.00023 .00924 .00024 .00924 0.00024	6.58600 .58921 .59241 .59560 6.59878	0.00039 .00039 .00039 .00039	60 58 56 54 52
0+15 2 4+16 6	4.67757 .70605 .73363 .76036	0.00000 .00000 .00001 .00001	5.63181 .64141 .65090 .66029	0.00004 .00004 .00004 .00005	6.07550 .08127 .08700 .09270	0.00012 .00012 .00012 .00012	6.36774 .37186 .37597 .38006	0.00023 .00924 .00024 .00924	6.58600 .58921 .59241 .59560	0.00039 .00039 .00039	58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18 14	4.67757 .70605 .73363 .76036 4.78629 .81147 .83594 .85973	0.00000 .00000 .00001 .00001 .00001 .00001 .00001	5.63181 .64141 .65090 .66029 5.66958 .67877 .68787	0.00004 .00004 .00005 0.00005 .00005 .00005	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511	0.00012 .09012 .09012 .09013 .00013 .00013 .00013	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622	0.00023 .00924 .00024 .00924 0.00024 .00024 .00025 .99025	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823	0.00039 .09039 .09039 .09039 0.00040 .09040 .00041	58 56 54 52 50 48 46
0+15 2 4+16 6 8+17 10 12+18 14 16+19	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290	0.09090 .00000 .00301 .09001 0.00001 .00001 .99001 0.00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 .69687 5.70578	0.00004 .00004 .00004 .00005 .00005 .00005 .00005 .00005	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063	0.00012 .09012 .90012 .09013 .00013 .00013 .00013	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021	0.00023 .00924 .00024 .00924 0.00024 .00025 .00025 0.00025	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136	0.00039 .00039 .00039 .00039 0.00040 .09040 .00040 .00041	60 58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14	4.67757 .70605 .73363 .76036 4.78629 .81147 .83594 .85973	0.00000 .00000 .00001 .00001 .00001 .00001 .00001	5.63181 .64141 .65090 .66029 5.66958 .67877 .68787 .69687 5.70578 .71460 .72332	0.00004 .00004 .00005 0.00005 .00005 .00005	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511	0.00012 .09012 .09012 .09013 .00013 .00013 .00013	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622	0.00023 .00924 .00024 .00924 0.00024 .00024 .00025 .99025	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759	0.00039 .09039 .09039 .09039 0.00040 .09040 .00041	58 56 54 52 50 48 46
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .64141 .65090 .66029 5.66958 .67877 .68787 .570578 .71460 .72332 .73197	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696	0.00012 .09012 .09012 .09013 .09013 .00013 .00013 .00013 .00014 .00014	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418	0.00023 .00924 .00024 .00924 0.00021 .00025 .00025 0.00025	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068	0.00039 .00039 .00039 .00039 0.00040 .00040 .00041 0.00041 .00041	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .64141 .65090 .66029 5.66958 .67877 .68787 .570578 .71460 .72332 .73197 5.74052	0.00004 .09004 .09005 .09005 .00005 .00005 .00005 .00005 .00005	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234	0.00012 .09012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600	0.00023 .00924 .00024 .00024 .00025 .00025 .00025 .00025 .00026	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377	0.00039 .00039 .00039 .00040 .00040 .00041 0.00041 .00041 .00041 .00042	58 56 54 52 50 48 46 44 42 40 38 36
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74052 .74900	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769	0.00012 .09012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990	0.00023 .00924 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00026	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 0.00042	58 56 54 52 50 48 46 44 42 40 38 36 34
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22	4.67757 .70605 .73363 .76036 4.78629 .81147 .83594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .64141 .65090 .66029 5.66958 .67877 .68787 .69687 5.70578 .71460 .72332 .73197 5.74950 .75739 .76570	0.00004 .09004 .00005 0.00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300°	0.00012 .09012 .09013 .09013 .00013 .00013 .00013 .00014 .00014 .00014 .00014	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00026 .00026	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991	0.00039 .00039 .00039 .00039 0.00040 .00040 .00041 .00041 .00042 0.00042 .00042 .00043	58 56 54 52 50 48 46 44 42 40 38 36
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 02976 5.04885	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .64141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 5.77394	0.06004 .09004 .09005 0.09005 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353	0.00012 .09012 .09013 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00014	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .41208 6.41600 .41990 .42379 .42766 6.43151	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00026 .00027	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600	0.00039 .00039 .00039 .00040 .00040 .00041 0.00041 .00041 .00042 .00042 .00043 .00043	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74952 .74900 .75739 .76570 5.77394 .78209	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00015	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00026 .00027 .00027	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63296 6.63600 .63903	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00043	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	4.67757 .70605 .73363 .76036 4.78629 .81147 .83594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .69687 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00014 .00015 .00015	6.36774 .37186 .37597 .38006 6.38412 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .42379 .42766 6.43151 .43534 .43916	0.00023 .00924 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00026 .00027 .00027 .00027	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63803 .64205	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00043 .00044 .00044	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	4.67757 .70605 .73363 .76036 4.78629 .81147 .83594 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74952 .74900 .75739 .76570 5.77394 .78209	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00015 .00015	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00026 .00027 .00027	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63296 6.63600 .63903	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00043	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 \$6+24 \$8 40+25 42	4.67757 .70605 .73363 .76036 4.78629 .81147 .85594 .85973 4.88290 .90546 .92745 .94830 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847	0.00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930	0.00012 .09012 .09013 .09013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00015 .00015 .00015 .00015	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 6.44675 .45052	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00026 .00027 .00027 .00027 .00027 .00028	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.64806 .65105	0.00039 .09039 .09039 .09039 0.00040 .09040 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397 .82176	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00015 .00015 .00015	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 .44296 6.44675 .45052 .45427	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00027 .00028 .00028	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.64806 .65105	0.00039 .00039 .00039 .00039 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044 .00044 .00044	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534 .17188	0.00000 .00000 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397 .82176 .82948	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00015 .00015 .00015 .00015	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 .44296 6.44675 .45052 .45427 .45800	0.00023 .00924 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00027 .00028 .00028 .00028 .00028 .00028	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.64806 .65105 .65403	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044 .00044 .00045 .00045	58 56 54 52 50 48 46 44 42 38 36 34 32 30 28 26 24 22 20 18
0+15 2 4+16 6 8+17 10+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 48+27 50	4.67757 .70605 .73363 .76036 4.78629 .81147 .85594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534 .17188 5.18812 .20406	0.00000 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397 .82176 .82948 5.83713 .84472	0.06004 .09004 .09005 .09005 .09005 .09005 .09005 .09005 .09005 .09005 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09006 .09007 .09007	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437 .19940 6.20441 .20938	0.00012 .09012 .09013 .09013 .00013 .00013 .00013 .00014 .00014 .00014 .00015 .00015 .00015 .00015 .00015 .00016 .00016	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 6.44675 .45052 .45427 .45800 6.46172 .46543	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00028 .00028 .00028 .00028	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62668 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.64806 .65105 .65403 .65700 6.65996 .66291	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044 .00044 .00045 .00045 .00046	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	4.67757 .70605 .73663 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94830 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534 .17188 5.18812 .20406 .21971	0.00000 .00000 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397 .82176 .82948 5.83713 .84472 .85224	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00007 .00007	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437 .19940 6.20441 .20938 .21433	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00015 .00015 .00015 .00015 .00016 .00016 .00016	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 .44296 6.44675 .45052 .45427 .45800 6.46172 .46543 .46911	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00028 .00028 .00028 .00028 .00029 .00029	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.64806 .65105 .65403 .65700 6.65996 .66291 .66585	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044 .00045 .00045 .00046	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 28 26 24 22 20 18 16 14 12 10 8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534 .17188 5.18812 .20406 .21971 .23508	0.00000 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 .69687 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397 .82176 .82948 5.83713 .84472 .85224 .85969	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00007 .00007 .00007	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437 .19940 6.20441 .20938 .21433 .21925	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00014 .00015 .00015 .00015 .00015 .00016 .00016 .00016 .00016	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 .44296 6.44675 .45052 .45427 .45800 6.46172 .46543 .46911 .47279	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00028 .00028 .00028 .00028 .00029 .00029 .00029 .00029	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.65403 .65105 .65403 .65700 6.65996 .66291 .66585 .66878	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044 .00045 .00045 .00046 .00046	60 58 56 52 50 48 46 44 42 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	4.67757 .70605 .73663 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94830 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534 .17188 5.18812 .20406 .21971	0.00000 .00000 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397 .82176 .82948 5.83713 .84472 .85224	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00007 .00007	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437 .19940 6.20441 .20938 .21433	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00015 .00015 .00015 .00015 .00016 .00016 .00016	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 .44296 6.44675 .45052 .45427 .45800 6.46172 .46543 .46911	0.00023 .00024 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00028 .00028 .00028 .00028 .00029 .00029	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.64806 .65105 .65403 .65700 6.65996 .66291 .66585	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044 .00045 .00045 .00046	60 58 56 52 50 48 46 44 42 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 48+27 50 52+28 54 56+29	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534 .17188 5.18812 .20406 .21971 .23508 5.25019	0.00000 .00000 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.86611 .81397 .82176 .82948 5.83713 .84472 .85224 .85969 5.86709	0.00004 .00004 .00005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00007 .00007 .00007	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437 .19940 6.20441 .20938 .21433 .21925 6.22415	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00015 .00015 .00015 .00015 .00016 .00016 .00016 .00016 .00016 .00017	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .42379 .42766 6.43151 .43534 .43916 .44296 6.46172 .45800 6.46172 .46543 .46543 .46543 .47279 6.47644	0.00023 .00924 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00028 .00028 .00028 .00028 .00028 .00029 .00029 .00029 .00029	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.65105 .65403 .65700 6.65996 .66291 .665878 .66878	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00042 .00043 .00043 .00044 .00044 .00044 .00045 .00045 .00046 .00046 .00046	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 28 26 24 22 20 18 16 14 12 10 8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	4.67757 .70605 .73363 .76036 4.78629 .81147 .82594 .85973 4.88290 .90546 .92745 .94890 4.96983 4.99027 5.01024 .02976 5.04885 .06753 .08581 .10372 5.12127 .13847 .15534 .17188 5.18812 .20406 .21971 .23508 5.25019 .26503 5.27963	0.00000 .00000 .00001	5.63181 .34141 .65090 .66029 5.66958 .67877 .68787 .69687 5.70578 .71460 .72332 .73197 5.74052 .74900 .75739 .76570 5.77394 .78209 .79017 .79818 5.80611 .81397 .82176 .82948 5.83713 .84472 .85224 .85969 5.86709 .87442 5.88168	0.00004 .09004 .09005 .00005 .00005 .00005 .00005 .00005 .00005 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00006 .00007 .00007 .00007 .00007	6.07550 .08127 .08700 .09270 6.09836 .10398 .10956 .11511 6.12063 .12611 .13155 .13696 6.14234 .14769 .15300 .15828 6.16353 .16874 .17393 .17908 6.18421 .18930 .19437 .19940 6.20441 .20938 .21433 .21925 6.22415 .22901 6.23385	0.00012 .09012 .09013 .00013 .00013 .00013 .00013 .00014 .00014 .00014 .00015 .00015 .00015 .00015 .00016 .00016 .00016 .00016 .00017 .00017	6.36774 .37186 .37597 .38006 6.38412 .38817 .39220 .39622 6.40021 .40418 .40814 .41208 6.41600 .41990 .42379 .42766 6.43151 .43534 .43916 .44296 6.44675 .45052 .45427 .45800 6.46172 .466543 .46911 .47279 6.47644 .48008 6.48371	0.00023 .00924 .00024 .00024 .00025 .00025 .00025 .00026 .00026 .00027 .00027 .00027 .00027 .00027 .00028 .00028 .00028 .00028 .00029 .00029 .00029 .00029	6.58600 .58921 .59241 .59560 6.59878 .60194 .60509 .60823 6.61136 .61448 .61759 .62068 6.62377 .62684 .62991 .63296 6.63600 .63903 .64205 .64504 6.65105 .65403 .65700 6.65996 .66291 .66585 .66878 6.67170 .67461 6.67751	0.00039 .00039 .00039 .00040 .00040 .00041 .00041 .00041 .00042 .00043 .00043 .00043 .00044 .00044 .00045 .00045 .00045 .00046 .00046 .00046 .00047	60 58 56 52 50 48 46 44 42 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6

				. 00 64	l	20.021			1	10.001	_
	0 h 10 m		Oh 12n		Oh 14m		Oh 16n		0h 18m		
s ,	Log. Hav.	Nat. Hav.			Log. Hav.				Log. Hav.		s
0 0	6.67751	0.00048 .00048	6.83584 $.83825$	0.00069	$6.96970 \\ .97176$	0.00093 .00094	7.08564	0.00122 .00122	$7.18790 \\ .18950$	0.00154 .00155	60 58
2 4+ 1	.68040 .68328	.00048	.84065	.00069	.97382	.00034	.08925	.00123	.19111	.00155	56
6	.68615	.00049	.84304	.00070	.97588	.00095	.09105	.00123	.19271	.00156	54
8+ 2 10	6.68901 $.69186$.00049	6.84543 .84782	.00070	6.97793 .97997	0.00095 .00095	7.09284 0.09464	0.00124 .00124	7.19430 .19590	0.00156 .00157	52 50
12+ 3	.69470	.00050	.85019	.00071	.98201	.00096	.09642	.00125	.19749	.06158	48
14 16+ 4	69754 6.70036	0.00050 0.00050	6.85256 6.85492	.00071 0.00072	0.98405 0.98608	0.00096	09821 7.09999	.00125 0.00126	$\frac{.19908}{7.20066}$.00158 0.00159	46 44
18	.70318	.00050	.85728	.00072	.98811	.00097	10177	.00126	.20225	.00159	42
20+ 5	.70598	.00051	.85963	.00072	.99013	.00098	.10354	.00127	.20383	.00160	40
$\frac{22}{24+6}$	$\frac{.70878}{6.71157}$	0.00051	$\frac{.86197}{6.86431}$	0.00073	$\frac{.99214}{6.99416}$	0.00098	$\frac{.10531}{7.10708}$	$\frac{.00127}{0.00128}$	$\frac{.20540}{7.20698}$	0.00160	38 36
26	.71435	.00052	.86664	.00074	6.99616	.00099	.10884	.00128	.20855	.00162	34
28+ 7 30	.71712 .71988	.00052	.86897 .87129	.00074	6.99817 7.00017	.00100	.11060 $.11236$.00129	.21012 .21168	.00162 .00163	32 30
32+8	6.72263	0.00053	6.87360	0.00075	7.00216	0.00101	7.11411	0.00130	7.21325	0.00163	28
34	.72537	.00053	.87591	.00075	.00415	.00101	.11586	.00131	.21481	.00164	26
36+ 9 38	.72811 .73084	.00053 .00054	.87821 .88050	.00076	.00613 .00811	.00101	.11760 .11934	.00131	.21636 .21792	.00165	24 22
40+10	6.73355	0.00054	6.88279	0.00076	7.01009	0.00102	7.12108	0.00132	7.21947	0.00166	20
42 44+ 11	.73626 .73896	.00054 .00055	.88507 .88735	.00077	.01206 .01403	.00103	.12282 $.12455$.00133	.22102 $.22256$.00166	18 16
46	.74166	.00055	.88962	.00078	.01599	.00104	.12627	.00134	.22411	.00168	14
48 +12 50	6.74434	0.00056 .00056	6.89188	0.00078	$7.01795 \\ .01990$	0.00104 .00105	$7.12800 \\ .12972$	0.00134	7.22565 $.22718$	0.00168 .00169	12 10
52+ 13	.74969	.00056	.89639	.00079	.02185	.00105	.13144	.00135	.22872	.00169	8
54	.75235	.00057	.89864	.00079	.02379	.00106	.13315	.00136	.23025	.00170	6
56 +14 58	$6.75500 \\ 6.75764$	0.00057	$6.90088 \\ 6.90312$	0.00080	7.02573 7.02767	0.00106	7.13486 7.13657	0.00136 0.00137	7.23178 7.23331	0.00171	4 2
)		1		1			1 ~
	2311	49m	23 h	4/111	23 h			43m	231	41 ^m	
s .′		2° 30′		1 3° 0′		3° 30′	Oh 177	n 4° 0′		4° 30′	s
0+ 15	6.76028 .76290	0.00058 .00058	6.90535	.00080	7.02960	0.00107	7.13827 $.13997$	0.00137	7.23483	0.00172	60 58
~4+16°	.76552	.00058	.90979	.00081	.03345	.00108	.14167	.00139	.23787	.00173	56
6	.76814	.00059	.91200	.00032	.03537	00108	.14337	.00139	.23939	.00174	54
8+17 10	6.77074	0.00059 .00059	6.91421 $.91641$	0.00082	7.03729 $.03920$.00109	7.14506 .14674	0.00140	7.24090 $.24241$	0.00174	52 50
12+18	.77592									OTTUU.	
14		.00060	.91860	.00083	.04110	.00110	.14843	.00141	.24392	.00175	48
16 + 19	.77851	.00060	.92079	.00083	.04300	.00110	.15011	.00141	.24392 .24543	.00175	48 46
16 +19 18	.77851 6.78108 .78364	.00060 0.00060 .00061	$ \begin{array}{r} .92079 \\ 6.92298 \\ .92516 \end{array} $.00083 0.00084 .00084	.04300 7.04490 .04680	.00110 0.00111 .00111	.15011 7.15179 .15346	.00141 0.00142 .00142	.24392 .24543 7.24693 .24843	.00175 .00176 0.00177 .00177	48 46 44 42
18 20+ 20	.77851 6.78108 .78364 .78620	.00060 0.00060 .00061	$ \begin{array}{r} .92079 \\ 6.92298 \\ .92516 \\ .92733 \end{array} $.00083 0.00084 .00084 .00085	.04300 7.04490 .04680 .04869	.00110 0.00111 .00111 .00112	.15011 7.15179 .15346 .15513	.00141 0.00142 .00142 .00143	.24392 .24543 7.24693 .24843 .24993	.00175 .00176 0.00177 .00177	48 46 44 42 40
18	.77851 6.78108 .78364 .78620 .78875 6.79129	.00060 0.00060 .00061 .00061 0.00062	.92079 6.92298 .92516 .92733 .92950 6.93166	.00083 0.00084 .00084 .00085 .00085	$\begin{array}{c} .04300 \\ 7.04490 \\ .04680 \\ .04869 \\ .05057 \\ \hline 7.05245 \end{array}$.00110 0.00111 .00111	.15011 7.15179 .15346 .15513 .15680 7.15846	.00141 0.00142 .00142 .00143 .00143	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292	.00175 .00176 0.00177 .00177 .00178 .00178	48 46 44 42 40 38 36
18 20+20 22 24+21 26	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383	.00060 0.00060 .00061 .00061 0.00062 .00062	.92079 6.92298 .92516 .92733 .92950 6.93166 .93382	.00083 0.00084 .09084 .00085 .00085 0.00085	$\begin{array}{c} .04300 \\ 7.04490 \\ .04680 \\ .04869 \\ .05057 \\ \hline 7.05245 \\ .05433 \end{array}$.00110 0.00111 .00111 .00112 .60112 0.00113	.15011 7.15179 .15346 .15513 .15680 7.15846 .16013	.00141 0.00142 .00142 .00143 .00143 0.00144 .00145	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441	.00175 .00176 0.00177 .00177 .00178 .00178 0.00179 .00180	48 46 44 42 40 38 36 34
18 20+20 22 24+21 26 28+22 30	.77851 6.78108 .78364 .78620 .78875 6.79129	.00060 0.00060 .00061 .00061 0.00062	.92079 6.92298 .92516 .92733 .92950 6.93166	.00083 0.00084 .00084 .00085 .00085	$\begin{array}{c} .04300 \\ 7.04490 \\ .04680 \\ .04869 \\ .05057 \\ \hline 7.05245 \end{array}$.00110 0.00111 .00111 .00112 .00112	.15011 7.15179 .15346 .15513 .15680 7.15846	.00141 0.00142 .00142 .00143 .00143	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292	.00175 .00176 0.00177 .00177 .00178 .00178	48 46 44 42 40 38 36
18 20+20 22 24+21 26 28+22 30 32+23	$\begin{array}{c} .77851 \\ 6.78108 \\ .78364 \\ .78620 \\ \underline{.78875} \\ 6.79129 \\ .79383 \\ .79630 \\ .79888 \\ 6.80139 \end{array}$.00060 0.00060 .00061 .00061 0.00062 .00062 .00063 .00063	$\begin{array}{c} .92079 \\ 6.92298 \\ .92516 \\ .92733 \\ .92950 \\ \hline 6.93166 \\ .93382 \\ .93597 \\ .93812 \\ 6.94026 \end{array}$.00083 0.60084 .60085 .00085 .00085 0.00085 .00086 .00087	.04300 7.04490 .04680 .04869 .05057 7.05245 .05433 .05620 .05807 7.05994	0.00119 0.00111 .00112 .00112 .00113 .00113 .00114 .00114 0.00115	.15011 7.15179 .15346 .15513 .15680 7.15846 .16013 .16178 .16344 7.16509	.001£1 0.00142 .00142 .00143 .00143 0.00144 .00145 .00146 0.00146	.24392 .24543 7.24693 .24843 .25143 7.25292 .25441 .25590 .25738 7.25886	.00175 .00176 0.00177 .00178 .00178 .00179 .00180 .00181 0.00181	48 46 44 42 40 38 36 34 32 30 28
18 20+20 22 24+21 26 28+22 30	$\begin{array}{c} .77851 \\ 6.78108 \\ .78364 \\ .78620 \\ \underline{.78875} \\ 6.79129 \\ .79383 \\ .79630 \\ .79888 \end{array}$.00060 0.00060 .00061 .00061 0.00062 .00062 .00063	.92079 6.92298 .92516 .92733 .92950 6.93166 .93382 .93597 .93812	.00083 0.00084 .00085 .00085 0.00085 .00086 .00086 .00087 0.00087	$\begin{array}{c} .04300 \\ 7.04490 \\ .04680 \\ .04869 \\ .05057 \\ \hline 7.05245 \\ .05433 \\ .05620 \\ .05807 \end{array}$.00119 0.00111 .00112 .60112 0.00113 .00113 .00114 .00114 0.00115	$\begin{array}{c} .15011 \\ 7.15179 \\ .15346 \\ .15513 \\ .15680 \\ \hline 7.15846 \\ .16013 \\ .16178 \\ .16344 \end{array}$.00141 0.00142 .00142 .00143 .00143 0.00144 .00145 .00146 0.00146	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034	.00175 .00176 0.00177 .00178 .00178 .00179 .00180 .00181 0.00181 .00182	48 46 44 42 40 38 36 34 32 30 28 26
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .79888 6.80139 .80390 .80640 .80889	.00060 0.00060 .00061 .00061 0.00062 .00062 .00063 0.00063 0.00064	92079 6.92298 .92516 .92733 .92950 6.93166 .93382 .93597 .93812 6.94026 .94239 .94453 .94665	.00083 0.00084 .00085 .00085 0.00085 .00086 .00086 .00087 0.00087 .00088 .00088	.04300 7.04490 .04680 .04869 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551	.00119 0.00111 .00111 .00112 .00113 .00113 .00114 .00114 0.00115 .00116	.15011 7.15179 .15346 .15513 .15680 7.15346 .16013 .16178 .16344 7.16509 .16674 .16839 .17003	.00141 0.00142 .00142 .00143 .00143 0.00144 .00145 .00146 0.00146 .00147 .00148	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330	.00175 .00176 0.00177 .00178 .00178 .00179 .00180 .00181 0.00181 .00182 .00183	48 46 44 42 40 38 36 34 32 30 28 26 24 22
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .79888 6.80139 .80390 .80640 .80889	.00060 0.00060 .00061 .00062 .00062 .00063 .00063 .00063 .00064 .00064	92079 6.92298 .92516 .92733 .92950 6.93166 .93382 .93597 .93812 6.94026 .94239 .94453 .94665 6.94877	.00083 0.00084 .00085 .00085 .00086 .00086 .00087 0.00087 0.00088 .00088	.04300 7.04490 .04680 .04869 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736	.00119 0.00111 .00111 .00112 .00113 .00113 .00114 .00114 0.00115 .00116 .00116	.15011 7.15179 .15346 .15513 .15680 7.15346 .16013 .16178 .16344 7.16509 .16674 .16839 .17003	.00141 0.00142 .00143 .00143 0.00144 .00145 .00146 0.00146 .00147 .00148	.24392 .24543 7.24693 .24843 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330 7.26477	.00175 .00176 0.00177 .00178 .00178 .00189 .00180 .00181 .00181 .00182 .00183 .00183	48 46 44 42 40 38 36 34 32 30 28 26 24 22 20
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .79888 6.80139 .80390 .80640 .80889 6.81137 .81385 .81632	.00060 0.00060 .00061 .00061 0.00062 .00062 .00063 0.00063 .00064 .00064 .00065 .00065	92079 6.92298 92516 92733 92950 6.93166 93382 93597 93812 6.94026 94239 94453 94665 6.94877 95089 95300	.00083 0.00084 .09084 .09085 .09085 .09086 .00086 .00087 .00088 .00088 .00088 .00088 .00089	.04300 7.04490 .04680 .04680 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105	.00119 0.00111 .00111 .00112 0.00113 .00113 .00114 .00115 .00116 .00116 .00117 .00117	.15011 7.15179 .15346 .15513 .15680 7.15846 .16013 .16178 .16344 7.16509 .16674 .16839 .17003 7.17167 .17331 .17494	.00141 0.00142 .00143 .00143 0.00144 .00145 .00146 .00147 .00147 .00148 0.00148 .00149 .00150	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330 7.26477 .26624 .26771	.00175 .00176 0.00177 .00178 .00178 .00189 .00180 .00181 .00182 .00183 .00183 .00184 .00185	48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .79888 6.80139 .80390 .80640 .80889 6.81137 .81385 .81632 .81879	.00060 0.00060 .00061 .00062 .00062 .00062 .00063 .00064 .00064 .00064 .00065 .00065	92079 6.92298 .92516 .92733 .92950 6.93166 .93382 .93597 .93812 6.94026 .94239 .94453 .94665 6.94877 .95089 .95300 .95510	.00083 0.00084 .00085 .00085 .00086 .00086 .00087 0.00087 .00088 .00088 .00088 .00089 .00089	.04300 7.04490 .04680 .04869 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105 .07288	.00119 0.00111 .00112 .00113 .00113 .00114 .00114 .00115 .00116 .00116 .00117 .00117 .00118	.15011 7.15179 .15346 .15513 .15680 7.15846 .16013 .16178 .16344 7.16509 .16674 .16839 .17003 7.17167 .17331 .17494 .17657	.00141 0.00142 .00142 .00143 .00143 0.00144 .00145 .00146 0.00147 .00147 .00148 0.00148 0.00149 .00150	.24392 .24543 7.24693 .24843 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330 7.26477 .26624 .26771 .26917	.00175 .00176 0.00177 .00178 .00178 .00180 .00180 .00181 .00182 .00183 .00184 .00185 .00185 .00185	48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .79888 6.80139 .80390 .80640 .80889 6.81137 .81385 .81632 .81879 6.82124	.00060 0.00060 .00061 .00061 0.00062 .00062 .00063 0.00063 .00064 .00064 .00065 .00065	92079 6.92298 92516 92733 92950 6.93166 93382 93597 93812 6.94026 94239 94453 94665 6.94877 95089 95300	.00083 0.00084 .09084 .09085 .09985 0.00086 .00086 .00087 .00088 .00088 .00088 0.00089 .00090 .00090 0.00901	.04300 7.04490 .04680 .04680 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105	.00119 0.00111 .00111 .00112 0.00113 .00113 .00114 .00115 .00116 .00116 .00117 .00117	.15011 7.15179 .15346 .15513 .15680 7.15846 .16013 .16178 .16344 7.16509 .16674 .16839 .17003 7.17167 .17331 .17494	.00141 0.00142 .00143 .00143 0.00144 .00145 .00146 .00147 .00147 .00148 0.00148 .00149 .00150	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330 7.26477 .26624 .26771	.00175 .00176 0.00177 .00178 .00178 .00189 .00180 .00181 .00182 .00183 .00183 .00184 .00185	48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .80390 .80640 .80889 6.81137 .81385 .81632 .81879 6.82124 .82369 .82614	.00060 0.00060 .00061 .00061 0.00062 .00063 .00063 .00064 .00064 .00064 .00065 .00065 .00066 .00066 .00066 .00066	92079 6.92298 92516 92733 92950 6.93166 93382 93597 93812 6.94026 94239 94453 94665 6.94877 95089 95300 95510 6.95720 95930 96139	.00083 0.00084 .09084 .09085 .09085 .09086 .00086 .00087 .00088 .00088 .00088 .00088 .00089 .00091 .00091	.04300 7.04490 .04680 .04680 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105 .07288 7.07472 .07655 .07837	.00119 0.00111 .00111 .00112 0.00113 .00113 .00114 0.00115 .00116 .00116 .00117 .00118 .00118 0.00119 .00120	.15011 7.15179 .15346 .15513 .15680 7.15846 .16013 .16178 .16344 7.16509 .16674 .16839 .17003 7.17167 .17331 .17494 .17657 7.17820 .17982 .18144	.00141 0.00142 .00143 .00143 0.00144 .00145 .00146 .00146 .00147 .00148 0.00148 .00149 .00150 .00151 .00151	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330 7.26477 .26624 .26771 .26917 7.27064 .27210 .27355	.00175 .00176 0.00177 .00178 .00178 .00179 .00180 .00181 .00181 .00183 .00183 .00184 .00185 .00185 .00186 .00187 .00188	48 46 44 42 40 38 36 34 32 30 28 24 22 20 18 16 14 12 10 8
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .80390 .80640 .80889 6.81137 .81385 .81632 .81879 6.82124 .82369 .82614 .82857	.00060 0.00060 .00061 .00061 0.00062 .00063 .00063 .00064 .00064 .00065 .00065 .00066 .00066 .00066 .00066 .00067	92079 6.92298 92516 92733 92950 6.93166 93382 93597 94453 94453 94465 6.9427 95300 95510 6.95720 95930 96139 96347	.00083 0.00084 .09084 .09085 .09085 .09086 .00086 .00087 .00088 .00088 .00088 .00089 .00089 .00091 .00091 .00091	.04300 7.04490 .04680 .04680 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105 .07288 7.07472 .07655 .07837 .08019	.00119 0.00111 .00111 .00112 0.00113 .00113 .00114 .00115 .00116 .00116 .00117 .00118 .00118 0.00119 .00119	.15011 7.15179 .15346 .15513 .15680 7.15846 .16013 .16178 .16344 7.16509 .16674 .16839 .17003 7.17167 .17331 .17494 .17657 7.17320 .17982 .18144 .18306	.00141 0.00142 .00143 .00143 0.00144 .00145 .00146 .00147 .00147 .00148 0.00148 .00150 .00151 .00152	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.26830 7.26477 .26624 .26771 .26917 7.27064 .27210 .27355 .27501	.00175 .00176 0.00177 .00178 .00178 .00189 .00180 .00181 .00182 .00183 .00183 .00185 .00185 .00186 0.00186 .00188	48 46 44 42 40 38 36 34 32 28 26 24 22 20 18 16 14 12 10 8 6
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .79888 6.80139 .80390 .80640 .80889 6.81137 .81385 .81632 .81879 6.82124 .82369 .82614 .82857 6.83100 .83342	.00060 0.00060 .00061 .00062 .00062 .00062 .00063 .00064 .00064 .00065 .00065 .00066 0.00066 0.00066 .00067 .00067 .00068 .00068	92079 6.92298 .92516 .92733 .92950 6.93166 .93382 .93597 .94453 .94665 6.94239 .94453 .94665 6.94577 .95089 .95300 .95510 6.95720 .95930 .96139 .96347 6.96555 .66763	.00083 0.00084 .00084 .00085 .00085 .00086 .00087 0.00088 .00088 .00089 .00089 .00090 0.00091 .00091 .00092 .00093	.04300 7.04490 .04680 .04680 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105 .07288 7.07472 .07655 .07837 .08019 7.08383	.00119 0.00111 .00111 .00112 .60112 0.00113 .00114 .00115 .00115 .00116 0.00117 .00117 .00118 0.00119 .00119 .00120 0.00121	15011 7.15179 15346 15513 15680 7.15846 16013 16178 16344 7.16509 16674 16839 17003 7.17167 17331 17494 17657 7.17820 17982 18144 18306 7.18468 1.8629	.00141 0.00142 .00143 .00143 0.00144 .00145 .00146 0.00146 .00147 .00147 .00148 0.00148 0.00150 .00151 .00151 .00152	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330 7.26477 .26624 .26771 .26917 7.27064 .27210 .27355 .27501 7.27646 .27791	.00175 .00176 0.00177 .00178 .00178 .00189 .00180 .00181 .00183 .00183 .00184 .00185 .00185 .00186 .00186 .00187 .00188	48 46 44 42 40 38 38 36 32 30 28 26 22 22 20 18 16 14 12 10 8 6 4 2
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 48+27 50 52+28 54 56+29	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .79888 6.80139 .80390 .80640 .80889 6.81137 .81385 .81632 .81879 6.82124 .82369 .82614 .82857	.00060 0.00060 .00061 .00062 .00062 .00063 .00063 .00064 .00064 .00065 .00066 .00066 .00066 .00066 .00067	92079 6.92298 92516 92733 92950 6.93166 93382 93597 93812 6.94026 94239 94453 94665 6.94577 95089 95300 95510 6.95720 95930 96139 96347 6.96555	.00083 0.00084 .00084 .00085 .00085 .00086 .00086 .00087 .00088 .00088 .00088 .00088 .00089 .00099 .00091 .00091 .00092	.04300 7.04490 .04680 .04680 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105 .07288 7.07472 .07655 .07837 .08019 7.08201	.00119 0.00111 .00111 .00112 .00113 .00113 .00114 .00115 .00116 .00116 .00116 .00117 .00118 .00118 .00119 .00120 .00120	15011 7.15179 15346 15513 15680 7.15846 16013 16178 16344 7.16509 17003 7.17167 17331 17494 17657 7.17820 17982 18144 18306 7.18468	.00141 0.00142 .00143 .00143 .00144 .00145 .00145 .00147 .00147 .00148 0.00148 .00150 .00150 .00151 .00152	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.26330 7.26477 .26624 .26771 .26917 7.27064 .27355 .27501 7.27646	.00175 .00176 0.00177 .00178 .00178 .00180 .00180 .00181 .00181 .00183 .00183 .00184 .00185 .00186 .00186 .00186 .00186 .00188	48 46 44 42 40 38 36 34 32 28 26 24 22 20 18 16 14 12 10 8 6
18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	.77851 6.78108 .78364 .78620 .78875 6.79129 .79383 .79630 .80390 .80640 .80889 6.81137 .81385 .81632 .81879 6.82124 .82369 .82614 .82857 6.83100 .83342 6.83584	.00060 0.00060 .00061 .00062 .00062 .00062 .00063 .00064 .00064 .00065 .00065 .00066 0.00066 0.00066 .00067 .00067 .00068 .00068	92079 6.92298 92516 92733 92950 6.93166 93382 93597 93812 6.94026 94239 94453 94465 6.94877 95089 95300 95510 6.95720 95930 96139 96347 6.96555 66763 6.96970	.00083 0.00084 .00084 .00085 .00085 .00086 .00087 0.00088 .00088 .00089 .00089 .00090 0.00091 .00091 .00092 .00093	.04300 7.04490 .04680 .04680 .05057 7.05245 .05433 .05620 .05807 7.05994 .06180 .06366 .06551 7.06736 .06920 .07105 .07288 7.07472 .07655 .07837 .08019 7.08383	.00119 0.00111 .00111 .00112 0.00113 .00113 .00114 0.00115 .00116 .00116 .00117 .00118 .00118 0.00119 .00120 .00121 .00121	15011 7.15179 15346 15513 15680 7.15846 16013 16178 16344 7.16509 16674 16839 17003 7.17167 17331 17494 17657 7.17320 17982 18144 18306 7.18468 18629 7.18790	.00141 0.00142 .00143 .00143 0.00144 .00145 .00146 0.00146 .00147 .00147 .00148 0.00148 0.00150 .00151 .00151 .00152	.24392 .24543 7.24693 .24843 .24993 .25143 7.25292 .25441 .25590 .25738 7.25886 .26034 .26182 .26330 7.26477 .26624 .26771 .26917 7.27064 .27210 .27355 .27501 7.27646 .27791 7.27936	.00175 .00176 0.00177 .00178 .00178 .00189 .00180 .00181 .00183 .00183 .00184 .00185 .00185 .00186 .00186 .00187 .00188	48 46 44 42 40 38 38 36 32 30 28 26 22 22 20 18 16 14 12 10 8 6 4 2

	0 h 20 n	5° 0′	Oh 22 m	5° 30′	Oh 24n	6° 0′	0h 26m	6° 30′	Oh 28n	· 7° 0′	П
s ,			Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0 0	7.27936	0.00190	7.36209	0.00230	7.43760	0.60274	7.50706	0.00321	7.57135	0.00373	60
2	.28080	.00191	.36340	.00231	.43880	.00275	.50817	.00322	.57238	.00374	58
4+ 1 6	.28225	.00192	.36471 .36602	.00232	.44001 .44121	.00275	.50928 .51039	.00323	.57341 .57444	.00374	56 54
8+ 2	7.28513	0.00193	7.36733	0.00233	7.44241	0.00277	7.51149	0.00325	$\frac{7.57547}{7.57547}$	0.00376	52
10	.28656	.00193	.36864	.00234	.44361	.00278	.51260	.00326	.57650	.00377	50
12+ 3	.28800	.00194	.36994	.00234	.44480	.00278	.51370	.00326	.57752	.00378	48
14 16+ 4	.28943 7.29086	.00195 0.00195	37124 7.37254	.00235 0.00236	.44600 7.44719	.00279 0.00280	.51481 7.51591	.00327 0.00328	.57855 7.57957	.00379 0.00380	46 44
18	.29228	.00196	.37384	.00237	.44838	.00281	.51701	.00329	.58060	.00381	42
20+ 5	.29371	.00197	.37514	.00237	.44957	.00282	.51811	.00330	.58162	.00382	40
22	.29513	.00197	.37643	.00238	$\frac{.45076}{7.45194}$.00282	$\frac{.51921}{7.52030}$	0.00331	.58264	0.00383	$\frac{38}{36}$
24+ 6 26	7.29655 $.29797$.00198	7.37773 .37902	0.00239 .00239	.45313	0.00283 .00284	.52140	.00332	7.58366 .58467	.00384	34
28+ 7	.29938	.00199	.38030	.00240	.45431	.00285	.52249	.00333	.58569	.00385	32
30	.30079	.00200	.38159	.00241	.45549	.00285	.52358	.00334	.58670	.00386	30
32+8	7.30220 $.30361$.00201	7.38288 $.38416$	0.00241	7.45667 .45785	0.00286 .00287	7.52467 $.52576$.00335	7.58772 .58873	0.00387 .00388	28 26
34 36+ 9	.30502	.00202	.38544	.00243	.45903	.00288	.52685	.00336	.58974	.00389	24
38	.30642	.00203	.38672	.00244	.46020	.00289	.52794	.00337	.59075	.00390	22
40+10	7.30782	0.00203	7.38800	0.00244	7.46138	0.00289	7.52902	0.00338	7.59176	0.00391	20
42 44 +11	.30922 $.31062$.00204	.38927 .39054	.00245	.46255	.00290	.53011 .53119	.00339	.59277 .59378	.00392	18 16
46	.31201	.00205	.39182	.00247	.46489	.00292	.53227	.00341	.59478	.00393	14
48+12	7.31340	0.00206	7.39309	0.00247	7.46605	0.00292	7.53335	0.00341	7.59579	0.00394	12
50	.31479	.00206	.39435	.00248	.46722 $.46838$.00293	.53443	.00342	.59679	.00395	10 8
52+13 54	.31618	.00207	.39688	.00249	.46955	.00295	.53658	.00314	.59879	.00397	6
56+14	7.31895	0.00208	7.39815	0.00259	7.47071	0.00296	7.53766	0.00345	7.59979	0.06398	4
58	7.32033	0.00209	7.39941	0.00251	7.47187	0.00296	7.53873	0.00346	7.60079	0.00399	2
	23h	39 m	23h	37 m	23 h	35 m	23 h	33 m	23h	31 m	and
-							1		7		7 1
	Oh 91n	5° 0′	Oh 2.8m	5° 30′	Oh 251	6° 0'	Oh 2710	6° 30′	Oh 291	n 7° 0′	
8 /		5° 0′	0h 23m			0 00297		6° 30′	i	n 7° 0′	s 60
s ' 0+15 2	0h 21n 7.32171 .32309	0.00210 0.00210	7.40067 .40192	5° 30′ 0.00252 .00252	0 h 25 i 7.47302 .47418	0.00297 0.00298	0 h 27 m 7.53980 .54087	6° 30′ 0.00347 .00347	7.60179 -60279	7° 0′ 0.00400 .00401	s 60 58
0+15 2 4+16	7.32171 .32309 .32446	0.00210 .00210 .00211	7.40067 .40192 .40318	0.00252 .00252 .00253	7.47302 .47418 .47533	0.00297 .00298 .60299	7.53980 .54087 .54194	0.00347 .00347 .00348	7.60179 .60279 .60378	0.00400 .00401 .00402	60 58 56
0+15 2 4+16 6	7.32171 .32309 .32446 ,32583	0.00210 .00210 .00211 .00212	7.40067 .40192 .40318 .40443	0.00252 .00252 .00253 .00254	7.47302 .47418 .47533 .47649	0.00297 .00298 .00299 .00306	7.53980 .54087 .54194 .54301	0.00347 .00347 .00348 .00349	7.60179 .60279 .60378 .60478	0.00400 .00401 .00402 .00403	60 58 56 54
0+15 2 4+16 6 8+17	7.32171 .32309 .32446 ,32583 7.32720	0.00210 .00210 .00211 .00212 0.00212	7.40067 .40192 .40318 .40443 7.40568	0.00252 .00252 .00253 .00254 0.00255	7.47302 .47418 .47533 .47649 7.47764	0.00297 .00298 .60299 .00300	7.53980 .54087 .54194 .54301 7.54407	0.00347 .00347 .00348 .00349	7.60179 .60279 .60378 .60478 7.60577	0.00400 .00401 .00402 .00403 0.00403	60 58 56 54 52
0+15 2 4+16 6	7.32171 .32309 .32446 ,32583	0.00210 .00210 .00211 .00212	7.40067 .40192 .40318 .40443	0.00252 .00252 .00253 .00254	7.47302 .47418 .47533 .47649	0.00297 .00298 .00299 .00306	7.53980 .54087 .54194 .54301	0.00347 .00347 .00348 .00349	7.60179 .60279 .60378 .60478	0.00400 .00401 .00402 .00403	60 58 56 54
0+15 2 4+16 6 8+17 10 12+18 14	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 .00214	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943	0.00252 .00252 .00253 .00254 0.00255 .00255 .00256	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109	0.00297 .00298 .60299 .00306 0.60300 .60301 .00302 .00303	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727	0.00347 .00348 .00349 0.00350 .00351 .00352 .00353	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874	0.00400 .00401 .00402 .00403 0.00403 .00404 .00405	50 58 56 54 52 50 48 46
0+15 2 4+16 6 8+17 10 12+18 14 16+19	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 .00214 0.00215	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067	0.00252 .00252 .00253 .00254 0.00255 .00255 .00256 .00257	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223	0.00297 .00298 .60299 .00300 .60300 .60301 .00302 .00303	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833	0.00347 .00347 .00348 .00349 0.00350 .00351 .00352 .00353 0.00353	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973	0.00400 .00401 .00402 .00403 0.00403 .00404 .00405 .00406 0.00407	60 58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 .00214	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943	0.00252 .00252 .00253 .00254 0.00255 .00255 .00256	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109	0.00297 .00298 .60299 .00306 0.60300 .60301 .00302 .00303	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727	0.00347 .00348 .00349 0.00350 .00351 .00352 .00353	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874	0.00400 .00401 .00402 .00403 0.00403 .00404 .00405	50 58 56 54 52 50 48 46
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 7.33266 7.33266 7.33266 33402 .33538 .33673	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 .00214 0.00215 .66216 .00216	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439	0.00252 .00252 .00253 .00254 0.00255 .00256 .00257 0.00257 .00258 .00259	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48337 .48452 .48566	0.00297 .00298 .00299 .00300 0.60300 .00301 .00302 .00303 0.00304 .00305 .00306	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045	0.00347 .00348 .00349 0.00350 .00351 .00352 .00353 0.00353 .00354 .00355	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269	0.00400 .00401 .00403 .00403 0.00403 .00404 .00405 .00406 0.00407 .00408 .00409	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673	0.00210 .00210 .00211 .00212 .00212 .00213 .00214 .00214 .00215 .00216 .00216	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563	0.00252 .00252 .00253 .00254 0.00255 .00256 .00257 0.00257 .00258 .00259 .00260	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48337 .48452 .48566 7.48680	0.00297 .00298 .00299 .00300 .00301 .00302 .00303 0.00304 .00304 .00305 .00306	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61072 .61170 .61269 7.61367	0.00400 .00401 .00402 .00403 .00404 .00405 .00406 0.00407 .00408 .00409 .00410	58 56 54 52 50 48 46 44 42 40 38 36
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 .00215 .66216 .00217 0.60218	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686	0.00252 .00252 .00253 .00254 0.00255 .00255 .00257 0.00257 .00258 .00259 0.00260	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48537 .48452 .48566 7.48680 .48794	0.00297 .00298 .00299 .00300 .00300 .00301 .00302 .00304 .00304 .00305 .00306	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .55045 .55150 7.55256 .55361	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00357 .00357	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466	0.00400 .00401 .00402 .00403 0.09403 .00404 .00405 .00406 0.00407 .00408 .00409 .00411 0.00411	58 56 54 52 50 48 46 44 42 40 38 36 34
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30	7.32171 .32309 .32446 .32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213	0.00210 .00211 .00212 0.00212 .00213 .00214 .00214 0.00215 .00216 .00216 .00217 0.00218 .00218 .00219	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933	0.00352 .00252 .00253 .00253 .00255 .00255 .00257 .00257 .00257 .00258 .00259 .00260 .00261 .00262	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48337 .48452 .48566 7.48680 .48794 .48907 .49021	0.00297 .00298 .00299 .00306 0.60300 .00301 .00302 .00304 .00304 .00306 0.00307 .00398 .00308	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55361 .55467	0.00347 .00348 .00349 0.00350 .00351 .00352 .00353 .00354 .00356 0.00357 .00356	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61072 .61170 .61269 7.61367 .61466 .61564	0.00400 .00401 .00402 .00403 0.09403 .00404 .00405 .00406 .00407 .00408 .00410 0.00411 .00413	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 0.00215 .00216 .00217 0.00218 .00218 .00219 .00219	7.40067 .40192 .40318 .40443 7.40568 -40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056	0.00252 .00252 .00253 .00254 0.00255 .00257 0.00257 0.00257 .00259 .00260 0.00260 .00261 .00263 0.00263	7.47302 .47418 .47533 .47649 7.47764 .47879 .47899 7.48223 .48337 .48452 .48566 7.48680 .48794 .48907 .49021 7.49134	0.00297 .00298 .00299 .00306 0.00300 .00301 .00303 0.00304 .00305 .00306 0.00397 .00308 .00308 .00309 0.00310	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .55045 .55150 7.55256 .55361 .55467 7.55572 7.55677	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00356 0.00356 0.00356	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760	0.00400 .00401 .00402 .00403 0.00403 .00406 .00406 0.00407 .00408 .00409 .00411 .00411 .00411 .004114	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34482	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 0.00215 .00216 .00216 .00217 0.00218 .00219 .00220 .00220	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179	0.00252 .00252 .00253 .00254 0.00255 .00256 .00257 .00258 .00259 .00260 0.00260 .00261 .00262 .00263 .00263	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48537 .48452 .48566 7.48680 .48794 .48907 17.49134 .49247	0.00297 .00298 .60299 .90306 0.60300 .60301 .00303 0.00304 .00304 .00305 .00306 0.00307 .00308 .00308 .00308 .00309	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .55045 .55150 7.55256 .55361 .55467 .55572 7.55677 .55782	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00356 0.00359 .00360 0.00360	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858	0.00400 .00401 .00402 .00403 0.00403 .00404 .00405 .00406 0.00407 .00408 .00410 .00411 .00413 .00413 .00416	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 0.00215 .00216 .00217 0.00218 .00218 .00219 .00219	7.40067 .40192 .40318 .40443 7.40568 -40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056	0.00252 .00252 .00253 .00254 0.00255 .00257 0.00257 0.00257 .00259 .00260 0.00260 .00261 .00263 0.00263	7.47302 .47418 .47533 .47649 7.47764 .47879 .47899 7.48223 .48337 .48452 .48566 7.48680 .48794 .48907 .49021 7.49134	0.00297 .00298 .00299 .00306 0.00300 .00301 .00303 0.00304 .00305 .00306 0.00397 .00308 .00308 .00309 0.00310	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .55045 .55150 7.55256 .55361 .55467 7.55572 7.55677	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00356 0.00356 0.00356	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760	0.00400 .00401 .00402 .00403 0.00403 .00406 .00406 0.00407 .00408 .00409 .00411 .00411 .00411 .004114	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25	7.32171 .32309 .32446 .32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34482 .34616 .34750 7.34884	0.00210 .00211 .00212 .00212 .00213 .00214 .00214 .00216 .00216 .00217 0.00218 .00219 .00220 0.00221 .00221	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42301 .4244 7.42546	0.00252 .00253 .00254 0.00255 .00255 .00256 .00257 0.00257 .00259 .00260 0.00261 .00261 .00263 .00264 .00263 .00264 .00265	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48367 .48566 7.48680 .48794 .48907 .49021 7.49134 .49247 .49360 .49473 7.49586	0.00297 .00298 .00299 .00300 .00300 .00301 .00302 .00304 .00304 .00306 0.00307 .00398 .00308 .00309 0.00310 .00312	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .555150 7.55256 .55361 .55467 .55572 7.56077 7.5782 .55887 .55992 7.56096	0.00347 .00348 .00349 0.00350 .00351 .00352 .00353 .00354 .00356 0.00360 0.00360 0.00360 .00363 .00353	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61072 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62033	0.00400 .00401 .00402 .00403 .00404 .00405 .00406 .00407 .00408 .00410 .00411 .00413 .00413 .00416 .00416 .00416 .00416	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 28 22 20
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34616 .34750 7.34884 .35017	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 0.00215 .00216 .00217 0.00218 .00218 .00219 .00220 0.00221 .00222 .00223 .00223 .00223	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42668	0.00252 .00252 .00253 .00254 0.00255 .00257 0.00257 0.00257 .00258 .00260 0.00260 .00261 .00262 .00263 0.00263 0.00263 .00264 .00266 0.00266 0.00266 .00266	7.47302 .47418 .47533 .47649 7.47764 .47879 .47899 .48109 7.48223 .48337 .48452 .48566 7.48680 .48794 .48907 .49021 7.49134 .49247 .49360 .49473 7.49536 .49699	0.00297 .00298 .00299 .00300 0.00300 .00301 .00304 .00304 .00306 0.00307 .00308 .00308 .00309 0.00310 .00312 .00312	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55361 .55467 .55572 7.56877 7.55827 7.56996 .56992 7.56096 .56201	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00360 0.00360 0.00360 .00361 .00363 0.00364 .00363	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62053 7.62151 .62248	0.00400 .00401 .00402 .00403 .00403 .00406 .00406 .00406 .00409 .00410 .00411 .00412 .00413 .00416 .00416 .00416 .00416 .00418 .00418	58 56 54 52 50 48 46 44 42 40 38 36 36 34 28 26 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34482 .34616 .34750 7.34884 .35017 .35150 .35150	0.00210 .00210 .00211 .00212 .00213 .00214 .00214 .00215 .00216 .00216 .00217 0.00221 .00220 .00223 0.00223 0.00223	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42668 .42790	0.00252 .00252 .00253 .00254 0.00255 .00257 .00257 .00258 .00260 0.00260 .00261 .00262 .00263 .00264 .00263 .00264 .00266 .00266 .00266 .00266 .00266 .00266 .00266 .00266	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48537 .48452 .48566 7.48680 .48794 .48907 17.49134 .49247 .49360 .49473 7.49586 .49699 .49811	0.00297 .00298 .00299 .00300 .00300 .00301 .00303 0.00304 .00305 .00306 0.00397 .00398 .00308 .00309 0.00310 .00312 .00312 .00312	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .55045 .55150 7.55256 .55361 .55467 .55572 7.56077 7.55782 .558782 .55992 7.56201 .56201 .56201 .56305	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00357 .00356 0.00360 .00361 .00363 0.00364 .00363 .00363	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61072 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62053 7.62151 .62248 .62345	0.00400 .00401 .00403 .00403 .00404 .00405 .00406 0.00407 .00408 .00412 .00413 .00414 0.00414 0.00415 .00416 .00418 .00419 .00419 .00419	60 58 56 54 52 50 48 46 44 42 42 38 36 34 32 28 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 46 48+27	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34482 .34616 .34750 7.34884 .35017 .35150 .35283 7.35416	0.00210 .00211 .00212 .00212 .00213 .00214 .00214 .00215 .06216 .00217 0.00218 .00219 .00221 .00221 .00221 .00223 .00223 .00223 .00224 .00225 .00225	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42668 .42790 .42912 7.43034	0.00252 .00252 .00253 .00254 0.00255 .00255 .00257 .00257 .00258 .00259 .00260 .00261 .00263 0.00263 0.00264 .00265 .00266 .00266 .00266 .00266 .00266 .00266 .00266	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48566 7.48680 .48794 .48907 .49021 7.49134 .49247 .49360 .49473 7.49586 .49699 .49811 .49923 7.50036	0.00297 .00298 .00299 .00300 .00300 .00301 .00303 0.00304 .00305 .00306 .00309 .00310 .00312 .00312 .00312 .00313 .00314 .00316 .00316	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .55045 .55150 7.55256 .55361 .55467 .55572 7.56677 7.55782 .558782 .55992 7.56096 .56201 .50305 .56409 7.56513	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00356 .00356 0.00360 0.00360 0.00360 0.00360 .00363 0.00364 .00363 0.00364	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61072 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62053 7.62151 .62248 .62345 .62345 .62442 7.62540	0.00400 .00401 .00402 .00403 .00404 .00405 .00406 0.00407 .00410 .00411 .00413 .00414 0.00415 .00416 .00416 .00416 .00416 .00417 0.00418 .00419 .00410 .00410	60 58 56 54 52 50 48 46 44 42 40 38 36 36 32 28 26 24 22 20 18 16 11 12
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 46 48+27 50	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34462 .34616 .34750 7.34884 .35017 .35150 7.35283 7.35283 7.35416 .35549	0.00210 .00211 .00212 0.00212 .00213 .00214 .00214 0.00215 .06216 .00217 0.00218 .00218 .00219 .00220 0.00221 .00222 0.00223 .00224 .00225 .00225 0.00226	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42790 .42912 7.43034 .43155	0.00252 .00252 .00253 .00254 0.00255 .00257 0.00257 0.00257 .00260 0.00260 0.00261 .00263 .00263 0.00263 .00264 .00266 .00266 .00266 .00266 .00266 .00266 .00267 .00266	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48537 .48452 .48566 7.48680 .48794 .49021 7.49134 .49247 .49360 .49473 7.49586 .49699 .49811 .49923 7.50036 .50148	0.00297 .00298 .00299 .00306 0.00300 .00303 0.00304 .00304 .00306 0.00397 .00308 .00309 0.00310 .00312 .00312 .00313 .00314 .00315 .00316 .00316	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55361 .55467 .55572 7.5582 .55887 7.56096 .56201 .56305 .56409 7.56409 7.56513 .56617	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00356 0.00356 0.00360 0.00360 .00361 .00362 .00363 0.00364 .00365 .00366 .00366 .00366 .00366 .00366	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62053 7.62151 .62248 .62345 .62442 7.62540 .62636	0.00400 .00401 .00403 .00403 .00404 .00405 .00406 .00407 .00410 .00411 .00412 .00413 .00416 .00416 .00416 .00416 .00419 .00419 .00420 .00422	60 58 56 54 52 50 48 46 44 42 42 40 38 36 32 30 28 26 24 22 20 18 16 11 12 10
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .3944 .34079 .34213 7.34348 .34482 .34616 .34750 7.34884 .35017 .35150 .35283 7.35416 .35549 .35681	0.00210 .00210 .00211 .00212 0.00212 .00213 .00214 0.00215 .00216 .00216 .00218 .00218 .00218 .00219 .00220 0.00221 .00222 .00223 0.00223 .00225 .00225 0.00227	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.425466 .42668 .42790 .42912 7.43034 .43155 .43277	0.00252 .00252 .00253 .00254 0.00255 .00257 0.00257 .00258 .00259 .00260 0.00261 .00262 .00263 .00264 .00263 .00264 .00265 .00266 0.00266 0.00266 0.00266 0.00266 .00267 0.00269	7.47302 .47418 .47533 .47649 7.47764 .47879 .47899 .48337 .48566 7.48680 .48794 .48907 .49021 7.49134 .49247 .49360 .49473 7.49586 .49699 .49811 .49923 7.50036 .50148 .50259	0.00297 .00298 .00299 .00300 .00300 .00301 .00303 0.00304 .00305 .00306 0.00397 .00398 .00308 .00311 .00312 .00312 .00313 .00314 .00316 .00316 .00316 .00316	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55361 .55467 7.55572 7.56096 .56592 7.56096 .56305 .56409 7.56513 7.56513 .56617 7.56513	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00367 .00360 .00361 .00362 .00363 0.00364 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363 .00363	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62053 7.62151 .62248 .62345 .62442 7.62540 .62636 .62733	0.00400 .00401 .00402 .00403 .00404 .00405 .00406 .00406 .00407 .00413 .00411 .00413 .00414 .00416 .00416 .00416 .00418 .00419 .00418 .00419 .00423 .00423 .00423	60 58 56 54 52 50 48 46 44 42 42 40 38 36 34 32 22 20 18 16 14 12 10 8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .344616 .34750 7.34884 .35017 .35150 .35283 7.35416 .35549 .35681 .35813	0.00210 .00210 .00211 .00212 .00213 .00214 .00214 .00215 .66216 .00217 0.60218 .00219 .00220 .00223 0.00223 0.00223 .00225 .00225 0.00226 .00227 .00227	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42668 .42790 .42912 7.43034 .43155 .43277 .43398	0.00252 .00252 .00253 .00254 0.00255 .00257 0.00257 0.00257 .00260 0.00260 0.00261 .00263 .00263 0.00263 .00264 .00266 .00266 .00266 .00266 .00266 .00266 .00267 .00266	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48537 .48452 .48566 7.48680 .48794 .49021 7.49134 .49247 .49360 .49473 7.49586 .49699 .49811 .49923 7.50036 .50148	0.00297 .00298 .00299 .00306 0.00300 .00303 0.00304 .00304 .00306 0.00397 .00308 .00309 0.00310 .00312 .00312 .00313 .00314 .00315 .00316 .00316	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55361 .55467 .55572 7.55699 7.56096 .56201 .56305 .56409 7.56513 .56617 .56825	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00356 0.00356 0.00360 0.00360 .00361 .00362 .00363 0.00364 .00365 .00366 .00366 .00366 .00366 .00366	7.60179 .60279 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62053 7.62151 .62248 .62345 .62442 7.62540 .62636 .62733 .62830	0.00400 .00401 .00403 .00403 .00404 .00405 .00406 .00407 .00410 .00411 .00412 .00413 .00416 .00416 .00416 .00416 .00419 .00419 .00420 .00422	60 58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 27 20 18 16 16 17 18 18 18 18 18 18 18 18 18 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34482 .34616 .34750 7.34584 .35017 .35150 .35283 7.35416 .35549 .35681 .355813 7.35945 .36077	0.00210 .00211 .00212 .00213 .00214 .00214 .00215 .00216 .00217 0.00218 .00219 .00220 0.00221 .00222 .00223 0.00223 .00225 0.00226 .00227 .00227 .00228 0.00229 0.00229	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42668 .42790 .42912 7.43034 .43155 .43277 .43398 7.43519 .43639	0.00252 .00253 .00254 0.00255 .00256 .00257 0.00257 .00259 .00260 0.00261 .00263 .00263 .00264 .00263 .00266 .00266 .00266 .00267 .00266 .00267 .00269 .00269 .00272	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48566 7.48680 .48794 .48907 .49021 7.49134 .49247 .49360 .49473 7.49586 .49699 .49811 .49923 7.50036 .50148 .50259 .50371 7.50483 .50594	0.00297 .00298 .00299 .00306 0.00300 0.00303 0.00304 .00304 .00305 .00306 0.00307 .00310 .00312 .00312 .00313 .00314 .00315 .00316 .00316 .00316 .00317 .00318 .00319	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55361 .55467 .55572 7.56096 .56201 .56305 .56409 7.56251 .56825 7.56928 .57092	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00359 .00360 0.00360 0.00360 0.00360 0.00361 .00363 0.00364 .00365 .00366 .00366 .00366 .00367 0.00367 .00369	7.60179 .60279 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61072 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .62953 7.62151 .62248 .62345 .62442 7.62540 .62636 .62733 .62630 7.62927	0.00400 .00401 .00402 .00403 .00404 .00405 .00406 0.00407 .00410 .00411 .00413 .00414 0.00416 .00426 .00426 .00426 .00426 .00426	60 58 56 54 52 50 48 46 44 42 42 38 36 32 30 28 26 27 20 18 16 11 12 10 8 6 4 4 4 2 2 2 2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 36+24 44+26 48+27 50 52+28 54 56+29	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .36673 7.33809 .33944 .34079 .34213 7.34348 .34616 .34750 7.34884 .35017 .35150 .35283 7.35416 .35549 .35681 .35813 7.35945	0.00210 .00211 .00212 .00213 .00214 .00214 .00215 .00216 .00217 0.00218 .00219 .00220 0.00221 .00222 .00223 .00223 .00223 .00223 .00224 .00225 .00226 .00227 .00226	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42668 .42790 .42912 7.43034 .43155 .43277 .43398 7.43519	0.00252 .00252 .00253 .00254 0.00255 .00255 .00257 .00257 .00258 .00260 .00261 .00262 .00263 .00264 .00266 .00266 .00266 .00266 .00266 .00266 .00266 .00269 .00269 .00270	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48566 7.48680 .48794 .48907 .49021 7.49134 .49247 .49360 .49473 7.49586 .49699 .49811 .49923 7.50036 .50148 .50259 .50371	0.00297 .00298 .00299 .00300 .00300 .00301 .00303 0.00304 .00305 .00306 0.00397 .00398 .00309 0.00310 .00312 .00312 0.00313 .00314 .00315 .00316 .00316 .00316 .00319 .00318	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55361 .55467 .555782 .55887 .55992 7.56096 .56201 .56305 .56409 7.56513 .56617 .566721 .56825 7.56928	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00356 0.00360 0.00360 0.00360 0.00360 0.00367 0.00367 0.00369	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61072 .61170 .61269 7.61367 .61466 .61564 .61662 7.61760 .61858 .61955 .62053 7.62151 .62248 .62345 .62442 7.62540 .62636 .62733 .62830 7.62927	0.00400 .00401 .00403 .00403 .00404 .00405 .00406 0.00407 .00418 .00413 .00414 0.00415 .00416 .00416 .00416 .00416 .00416 .00416 .00417 0.00418 .00418	60 58 56 54 52 50 48 46 44 42 40 38 36 36 32 28 26 28 20 18 16 11 12 10 8 6 4
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	7.32171 .32309 .32446 ,32583 7.32720 .32857 .32994 .33130 7.33266 .33402 .33538 .33673 7.33809 .33944 .34079 .34213 7.34348 .34616 .34750 7.34884 .35017 .35150 .35283 7.35416 .355549 .35681 .35813 7.35945 .36077 7.36209	0.00210 .00211 .00212 .00213 .00214 .00214 .00215 .00216 .00217 0.00218 .00219 .00220 0.00221 .00222 .00223 0.00223 .00225 0.00226 .00227 .00227 .00228 0.00229 0.00229	7.40067 .40192 .40318 .40443 7.40568 .40693 .40818 .40943 7.41067 .41191 .41315 .41439 7.41563 .41686 .41810 .41933 7.42056 .42179 .42301 .42424 7.42546 .42668 .42790 .42912 7.43034 .43155 .43277 .43398 7.43519 .43639 7.43760	0.00252 .00253 .00254 0.00255 .00256 .00257 0.00257 .00259 .00260 0.00261 .00263 .00263 .00264 .00263 .00266 .00266 .00266 .00267 .00266 .00267 .00269 .00269 .00272	7.47302 .47418 .47533 .47649 7.47764 .47879 .47994 .48109 7.48223 .48537 .48452 .48566 7.48680 .48794 .49021 7.49134 .49247 .49360 .49473 7.49586 .49699 .49811 .49923 7.50036 .50148 .50259 .50371 7.50483 .50594 7.50706	0.00297 .00298 .00299 .00306 0.00300 0.00303 0.00304 .00304 .00305 .00306 0.00307 .00310 .00312 .00312 .00313 .00314 .00315 .00316 .00316 .00316 .00317 .00318 .00319	7.53980 .54087 .54194 .54301 7.54407 .54514 .54620 .54727 7.54833 .54939 .55045 .55150 7.55256 .55572 7.55692 7.56096 .56305 .56409 7.56513 .56617 .565201 .566201 .56625 7.56928 .57032 7.57032 7.57135	0.00347 .00348 .00349 0.00350 .00351 .00353 0.00353 .00354 .00356 0.00359 .00360 0.00360 0.00360 0.00360 0.00361 .00363 0.00364 .00365 .00366 .00366 .00366 .00367 0.00367 .00369	7.60179 .60279 .60378 .60478 7.60577 .60676 .60775 .60874 7.60973 .61170 .61269 7.61367 .61466 .61564 .61662 .7.61760 .62053 7.62151 .62248 .62345 .62442 7.62540 .62636 .62733 .62830 7.62927 .63023 7.63120	0.00400 .00401 .00402 .00403 .00404 .00405 .00406 0.00407 .00410 .00411 .00413 .00414 0.00416 .00426 .00426 .00426 .00426 .00426	60 58 56 54 52 50 48 46 44 42 42 38 36 32 30 28 26 27 20 18 16 11 12 10 8 6 4 4 4 2 2 2 2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4

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	Oh 30m	7° 30′	Oh 32	8° 0′	0 h 34m	8° 30′	0 h 36 n	19° 0′	Oh 38m	9° 30′	
s '	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0 0	7.63120	0.00428	7.68717	0.00487	7.73974	0.00549	7.78929	0.00616	7.83615	0.00686	60
2 4+ 1	.63216 .63312	.60429 .00430	.68807 .68897	.00488 .00489	.74059 .74143	.00550 .00551	.79009 .79089	.00617	.83691 .83767	.00687	58
6	.63408	.00431	.68987	.00490	.74228	.00552	.79169	.00619	.83842	.00689	56 54
8+2	7.63504	0.00432	7.69077	0.00491	7.74313	0.00554	7.79249	0.00620	7.83918	0.00691	52
10	.63600	.00433	.69167	.00492	.74398	.00555	.79329	.00621	.83994	.00692	50
12+3	.63696 .63792	.00433	.69257 .69347	.00493 .00494	.74482 $.74567$.00556	.79409 .79489	.00622	.84070 .84145	.00693	48 46
16+4	7.63887	0.00435	7.69437	0.00495	7.74651	0.00558	7.79568	0.00625	7.84221	0.00695	44
18	.63983	.00436	.69526	.00496	74735	.00559	.79648	.00626	.84296	.00697	42
20+ 5	.64078 .64173	.00437 .00438	.69616 .69705	.00497	.74819 .74904	.00560	.79728 .79807	.00627	.84372 .84447	.00698	40
$\frac{24}{24+6}$	7.64269	0.00439	7.69794	0.00499	7.74988	0.00562	7.79886	0.00629	7.84522	0.00700	38 36
26	.64364	.00440	.69883	.00500	.75072	.00563	.79966	.00630	.84597	.00701	34
28+7	.64458	.00441	.69972	.00501	.75155	.00564	.80045	.00632	.84672	.00703	32
30 32+ 8	.64553 7.64648	.00442 0.00443	.70061 7.70150	.00502 0.00503	75239 7.75323	.00565 0.00567	.80124 7.80203	.00633 0.00634	.84747 7.84822	.00704 0.00705	30 28
34	.64743	.00444	.70239	.00504	.75407	.00568	.80282	.00635	.84897	.00706	26
36+ 9	.64837	.00445	.70328	.00505	.75490	.00569	.80361	.00636	.84972	.00707	24
38	.64932	.00446	.70416	.00506	.75574	.00570	.80440	.00637	.85047	.00709	22
40+ 10	7.65026 $.65120$	0.00447 .00448	7.70505 .70593	0.00507 .00508	7.75657 $.75740$	0.00571	$7.80519 \\ .80598$.00639	7.85122 $.85196$	0.00710	20 18
44+11	.65214	.00449	.70682	.00509	.75824	.00573	.80677	.00641	.85271	.00712	16
46	.65308	.00450 0.00451	.70770	.00510	.75907	.00574	.80755	.00642	.85346	.00714	14
48 +12 50	7.65402 .65496	.00452	7.70858	0.00511	7.75990	0.00575	7.80834 .80912	0.00643 .00644	7.85420 .85494	0.00715	12 10
52+ 13	.65590	.00453	.71034	.00513	.76156	.00578	.80991	.00646	.85569	.00717	8
54	.65683	.00454	.71122	.00514	.76239	.00579	.81069	.00647	85643	.00719	6
56 +14 58	7.65777 7.65870	0.00455 0.00456	7.71210 7.71298	0.00515 0.00516	7.76321 7.76404	0.00580	7.81147 7.81225	0.00648	7.85717 7.85791	0.00720 0.00721	4 2
33		1				0.00001	1.01220	0.00010	1.00701	0.00.21	-
	23 h	29 m	23 h	27 m	23h	25m	23 h	23 m	23 h	21 m	
s '		29 m 7° 30′		27 m		25m 8° 30′		23m		21 m 9° 30′	s
0+15	0h 31m 7.65964	7° 30′ 0.00457	0 h 33 n 7.71385	n 8° 0′ 0.00517	0 h 35 m 7.76487	8° 30′ 0.00582	0 h 37 i	n 9° 0′	0h 39m 7.85866	9° 30′ 0.00722	60
0+15 2	0 h 31 m 7.65964 .66057	7° 30′ 0.00457 .00458	0 h 337 7.71385 .71473	0.00517 .00518	0 ^h 35 ^m 7.76487 .76569	8° 30′ 0.00582 .00583	7.81303 .81382	9° 0′ 0.00650 .00651	7.85866 .85940	9° 30′ 0.00722 .00723	60 58
0+15	0h 31m 7.65964	7° 30′ 0.00457	0 h 33 n 7.71385	n 8° 0′ 0.00517	0 h 35 m 7.76487	8° 30′ 0.00582	0 h 37 i	n 9° 0′	0h 39m 7.85866	9° 30′ 0.00722	60 58 56
$ \begin{array}{c c} & & & \\ & & & \\ & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ & & & \\ \hline & & \\ & & & \\ \hline & & \\ & & & \\ \hline & & \\ & & & \\ \hline & & & \\$	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336	7° 30′ 0.00457 .00458 .00459 .00460 0.00461	7.71385 .71473 .71560 .71648 7.71735	0.00517 .00518 .00520 .00521 0.00522	7.76487 .76569 .76652 .76734 7.76816	8° 30′ 0.00582 .00583 .00584 .00585 0.00586	7.81303 .81382 .81459 .81537 7.81615	0.00650 .00651 .00653 .00654 0.00655	7.85866 .85940 .86014 .86087 7.86161	9° 30′ 0.00722 .00723 .00725 .00726 0.00727	60 58
$ \begin{array}{c c} & 3 \\ 0 + 15 \\ 2 \\ 4 + 16 \\ \hline 6 \\ \hline 8 + 17 \\ 10 \end{array} $	7.65964 .66057 .66150 .66243 7.66336 .66429	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462	7.71385 .71473 .71560 .71648 7.71735 .71822	0.00517 .00518 .00520 .00521 0.00522 .00523	7.76487 .76569 .76652 .76734 7.76816 .76898	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587	7.81303 .81382 .81459 .81537 7.81615 .81693	0.00650 .00651 .00653 .00654 0.00655	7.85866 .85940 .86014 .86087 7.86161 .86235	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00728	60 58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18	7.65964 .66057 .66150 .66243 7.66336 .66429 .66521	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462 .00463	7.71385 .71473 .71560 .71648 7.71735 .71822 .71909	0.00517 .00518 .00520 .00521 0.00522 .00523 .00524	7.76487 .76569 .76652 .76734 7.76816 .76898 .76981	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771	9° 0′ 0.00650 .00651 .00653 .00654 0.00655 .00656	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00728 .00730	60 58 56 54 52 50 48
0+15 2 4+16 6 8+17 10 12+18 14 16+19	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462 .00463 .00464 0.00465	0 ^h 33 ⁿ 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083	0.00517 .00518 .00520 .00521 0.00522 .00523 .00524 .00525 0.00526	0 h 35 m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00590 0.00591	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926	0.00650 .00651 .00653 .00654 0.00655 .00656 .00656 .00658 0.00660	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00728 .00730 .00731 0.00732	58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462 .00463 .00464 0.00465	0 h 33 n 7.713 85 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170	0.00517 .00518 .00520 .00521 0.00522 .00523 .00523 .00525 0.00526	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00590 0.00591	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003	0.00650 .00651 .00653 .00654 0.00655 .00656 .00657 .00658 0.00660	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00728 .00730 .00731 0.00732	58 56 54 52 50 48 46 44 42
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 · 20+20 22	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462 .00463 .00464 0.00465	0 ^h 33 ⁿ 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083	0.00517 .00518 .00520 .00521 0.00522 .00523 .00524 .00525 0.00526	0 h 35 m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00590 0.00591	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926	0.00650 .00651 .00653 .00654 0.00655 .00656 .00656 .00658 0.00660	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00728 .00730 .00731 0.00732	58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 · 20+20 22 24+21	0 ^h 31 ^m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00463 .00464 0.00465 .00466 .00468 0.00468	0h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430	0.00517 .00518 .00520 .00521 0.00522 .00523 .00524 .00525 0.00526 .00527 .00529 0.00529	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00590 0.00591 .00593 .00594 0.00595	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235	9° 0′ 0.00650 .00651 .00653 .00654 0.00655 .00656 .00658 0.00660 .00662 .00663 0.00663	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86603 .86603	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00732 .00733 .00735 .00736	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 · 20+20 22 24+21 26	0 ^h 31 ^m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462 .00463 .00464 0.00465 .00466 .00466 .00467	0h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516	0.00517 .00518 .00520 .00521 0.00522 .00524 .00525 0.00526 .00527 .00529 0.00530 .00531	0 ^h 35 ^m 7.76487 7.76569 7.6652 7.6734 7.76816 7.6898 7.7063 7.77145 7.77227 7.7308 7.77472 7.77553	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 0.00591 .00592 .00593 .00594 0.00595	0h 377 7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313	0.00650 .00651 .00653 .00654 0.00655 .00656 .00657 .00658 0.00660 .00661 .00662 .00663	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86603 .86663 .86676 7.86750 .86823	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00738 .00731 0.00732 .00733 .00735 .00736 0.00736	58 56 54 52 50 48 46 44 42 40 38 36 34
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 · 20+20 22 24+21	0 ^h 31 ^m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462 .00463 .00465 .00466 .00467 .00468	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603	0.00517 .00518 .00520 .00521 0.00522 .00523 .00524 .00525 0.00526 .00527 .00528 .00529 0.00530 .00531	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635	8° 30′ 0.00582 .00583 .00584 .00586 .00586 .00589 .00590 0.00591 .00592 .00593 .00594 0.00595 .00596	0h 377 7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390	0.00650 .00651 .00654 .00654 .00655 .00656 .00657 .00660 .00661 .00662 .00663 .00664 .00665	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86823	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00738 .00731 0.00732 .00733 .00735 .00736 0.00737	58 56 54 52 50 48 46 44 42 40 38 36 34 32
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 · 20+20 22 24+21 26 28+22 30 32+23	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443	7° 30′ 0.00457 .00458 .00459 .00469 .00463 .00463 .00464 0.00465 .00467 .00468 0.00469 .00470 .00472 0.00473	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72608 7.72775	0.00517 .00518 .00520 .00521 0.00522 .00524 .00525 0.00526 .00526 .00527 .00528 .00529 0.00530 .00531 .00533 0.00534	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635 .777716 7.77778	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00599 .00591 .00594 0.00595 .00596 .00598	0h 377 7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544	9° 0′ 0.00650 .00651 .00654 0.00656 .00657 .00658 0.00660 .00661 .00662 .00664 .00665 .00665 .00666 .00666 .00668	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.87042	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00733 .00735 .00736 0.00737 .00738 .00741 0.00741	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 · 20+20 22 24+21 26 28+22 30 32+23 34	0h 31m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00463 .00464 0.00465 .00466 .00467 .00468 0.00469 .00472 .00473 .00474	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72861	0.00517 .00518 .00520 .00521 0.00522 .00523 .00524 .00525 0.00526 .00527 .00528 .00529 0.00530 .00531 .00532 .00533	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .77063 7.77145 .77227 .77308 .77308 .77390 7.77472 .77553 .77635 .77716 7.777798 .77879	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00591 .00593 .00594 0.00595 .00598 .00599 .00599 .00599	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621	0.00650 .00651 .00653 .00654 0.00655 .00656 .00657 .00668 .00660 .00664 .00663 .00664 .00665 .00666 .00666 .00668	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86603 .86676 7.86750 .86823 .86896 .86969 7.87042 .87115	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00738 .00731 0.00735 .00736 0.00737 .00738 .00740 .00741 .00742	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 · 20+20 22 24+21 26 28+22 30 32+23	0 ^h 31 ^m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00463 .00464 0.00465 .00466 .00467 .00473 .00473 .00474 .00475	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72861 .72948	0.00517 .00518 .00520 .00521 0.00522 .00523 .00524 .00525 0.00526 .00527 .00529 0.00530 .00531 .00533 .00534 .00535	0 ^h 35 ^m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635 .77716 7.77798 .77799 .77796	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00591 .00592 .00593 .00594 0.00595 .00598 .00599 0.00600 .00600	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698	9° 0′ 0.00650 .00651 .00653 .00654 0.00655 .00656 .00658 0.00660 .00661 .00662 .00663 0.00664 .00665 .00667 .00669	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86603 .86676 7.86750 .86823 .86896 .86969 7.87042 .87115	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00738 .00731 0.00732 .00733 .00735 .00736 0.00741 0.00741 0.00741 0.00742	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25	0h 31m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535	7° 30′ 0.00457 .00458 .00469 .00461 .00463 .00464 0.00465 .00466 .00467 .00472 0.00473 .00474 .00475 .00476 .00476	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71892 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72861 .72948 .73034 7.73119	0.00517 .00518 .00520 .00521 .00522 .00523 .00524 .00525 .00526 .00527 .00528 .00532 .00531 .00533 .00533 .00534 .00535 .00536 .00537	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 .777472 .77553 .77635 .77716 7.77798 .77796 .78041 7.78122	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00591 .00593 .00594 0.00595 .00598 .00599 .00599 .00599	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621	0.00650 .00651 .00653 .00654 0.00655 .00656 .00657 .00668 .00660 .00664 .00663 .00664 .00665 .00666 .00666 .00668	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86603 .86676 7.86750 .86823 .86896 .86969 7.87042 .87115	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00738 .00731 0.00735 .00736 0.00737 .00738 .00740 .00741 .00742	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67900	7° 30′ 0.00457 .00458 .00459 .00469 .00463 .00463 .00464 0.00465 .00467 .00468 0.00469 .00470 .00472 0.00473 .00474 .00475 .00478	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72948 .73034 7.73034 7.73119 .73205	0.00517 .00518 .00520 .00521 .00522 .00524 .00525 .00526 .00526 .00529 .00529 .00531 .00533 .00534 .00535 .00537	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635 .77776 7.77798 .77879 .77809 .78041 7.78122 .78203	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00589 .00599 .00591 .00593 .00594 0.00595 .00598 .00598 .00598 .00598 .00599 .00599 .00590 .00600 .00600 .00603 .00604	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82551 .82928	9° 0′ 0.00650 .00651 .00653 .00654 0.00656 .00657 .00658 0.00660 .00663 0.00664 .00665 .00665 .00667 .00673 .00673	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.87042 .87115 .87185 .87261 7.87334	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00733 .00735 .00736 0.00737 .00738 .00741 0.00742 .00743 .00745 .00745 .00746 .00747 .00748	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+25 30 32+23 34 36+24 38 40+25 42 44+26	0h 31m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67990 .67991	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00463 .00463 .00465 .00466 .00467 .00471 .00472 0.00473 .00474 .00475 .00477 .00478 .00479	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72861 .72948 .73034 7.73119 .73205 .73291	0.00517 .00518 .00520 .00521 0.00522 .00524 .00525 0.00526 .00527 .00528 .00529 0.00530 .00531 .00532 .00533 .00534 .00535 .00534	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635 .77716 7.77798 .77879 .778041 7.78122 .78203 .78284	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00589 .00590 0.00591 0.00594 0.00595 .00598 .00598 .00598 .00599 .00600 .00601 .00602 .00604 .00605 .00606	0h 377 7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82851 .82928 .83004	9° 0′ 0.00650 .00651 .00653 .00654 0.00655 .00658 0.00660 .00661 .00662 .00663 0.00664 .00665 .00667 .00671 .00673 .00675	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.8742 .87115 .87188 .87261 7.87334 .87407 .87480	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00732 .00733 .00736 0.00737 .00748 .00742 .00743 .00742 .00745 .00747 .00745	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 22 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67900 .67991 .68082 7.68173	7° 30′ 0.00457 .00458 .00459 .00469 .00464 0.00465 .00466 .00467 .00468 0.00471 .00472 0.00473 .00476 0.00477 .00478 .00478 .00480 0.00480	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71999 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72861 .72948 .73034 7.73119 .73205 .73291 .73377 7.73462	0.00517 .00518 .00520 .00521 .00523 .00523 .00524 .00525 .00526 .00527 .00528 .00529 .00532 .00532 .00533 .00534 .00535 .00536 .00537	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 .777145 .77227 .77308 .77390 .777472 .77553 .77635 .77716 7.77798 .7789 .78041 7.78122 .78203 .78284 .78365 7.78446	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00593 .00594 0.00595 .00598 .00599 0.00609 0.00601 .00603 0.00604 .00603 0.00608 0.00608	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82551 .82928 .83004 .83081 7.83157	0.00650 .00651 .00653 .00654 0.00655 .00656 .00656 0.00660 .00663 0.00664 .00665 .00665 .00665 .00664 .00665 .00667 .00673 .00671 .00673	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.87042 .87115 .87115 .87188 .87261 7.87334 .87407 .87480 .87552 7.87625	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00738 .00731 0.00733 .00735 .00736 0.00737 .00740 .00741 0.00742 .00743 .00745 .00745 .00745 .00745	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67990 .67991 .68082 7.68173 .68264	7° 30′ 0.00457 .00458 .00459 .00469 0.00461 .00463 .00464 0.00465 .00468 0.00469 .00470 .00471 .00472 0.00473 .00474 .00478 .00478 .00480 0.00481 .00482	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72603 .72689 7.72775 .72948 .73034 7.73119 .73205 .73291 .73377 7.73462 .73548	0.00517 .00518 .00520 .00521 .00522 .00523 .00524 .00525 .00528 .00529 .00530 .00531 .00533 .00534 .00535 .00539 .00534 .00534 .00537	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635 .77716 7.77798 .77890 .78841 7.78122 .78203 .78284 .78365 7.78446 .78526	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00589 .00599 .00593 .00594 0.00594 0.00598 .00599 0.00604 .00602 .00604 .00605 .00608 .00609	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82551 .82928 .83004 .83081 7.83157 .83234	9° 0′ 0.00650 .00651 .00654 0.00655 .00656 .00656 .00663 0.00664 .00663 0.00664 .00665 .00669 .00669 .00670 .00671 .00675 .00676 .00676	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.87185 .87185 .87185 .87261 7.87334 .87480 .87480 .87552 7.87625 .87697	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00733 .00735 .00736 0.00737 .00741 0.00742 .00743 .00744 .00744 .00745 .00755 .00753	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 22 22 20 18 16 11 12
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67900 .67991 .68082 7.68173 .68264 .68355	7° 30′ 0.00457 .00458 .00459 .00469 .00463 .00464 0.00465 .00466 .00466 0.00467 .00471 .00472 0.00473 .00474 .00478 .00479 .00481 .00482 .00483	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71892 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72948 .73034 7.73119 .73205 .73291 .73377 7.73462 .73548 .73633	0.00517 .00518 .00520 .00521 .00522 .00524 .00525 .00526 .00527 .00529 .00530 .00531 .00533 .00534 .00535 .00536 .00537 .00537	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635 .77776 7.77798 .77879 .778041 7.78122 .78203 .78284 .78365 7.78446 .78526 .78607	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00589 .00590 0.00591 .00592 .00593 .00594 0.00595 .00598 .00598 .00598 .00598 .00598 .00598 .00598 .00598 .00609 .00600 .00605 .00607 .00608 .00609 .00609 .00609 .00609 .00601 .00609	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82551 .82928 .83004 .83081 7.83157 .83234	9° 0′ 0.00650 .00651 .00654 0.00655 .00656 .00657 .00660 .00661 .00662 .00663 0.00664 .00665 .00667 .00670 .00671 .00675 .00676 .00676 .00676 .00676	7.85866 .85940 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.87115 .87185 .87185 .87261 7.87334 .87407 .87480 .87552 7.87625 .87697	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00733 .00735 .00736 0.00737 .00742 .00742 .00743 .00744 .00744 0.00747 .00748 .00748 .00750 .00752 .00753	50 54 52 50 54 46 44 42 40 38 36 34 32 22 20 18 16 14 12 10 -8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67990 .67991 .68082 7.68173 .68264	7° 30′ 0.00457 .00458 .00459 .00469 0.00461 .00463 .00464 0.00465 .00468 0.00469 .00470 .00471 .00472 0.00473 .00474 .00478 .00478 .00480 0.00481 .00482	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72603 .72689 7.72775 .72948 .73034 7.73119 .73205 .73291 .73377 7.73462 .73548	0.00517 .00518 .00520 .00521 .00522 .00523 .00524 .00525 .00528 .00529 .00530 .00531 .00533 .00534 .00535 .00539 .00534 .00534 .00537	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 7.77145 .77227 .77308 .77390 7.77472 .77553 .77635 .77716 7.77798 .77890 .78841 7.78122 .78203 .78284 .78365 7.78446 .78526	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00589 .00599 .00593 .00594 0.00594 0.00598 .00599 0.00604 .00602 .00604 .00605 .00608 .00609	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82551 .82928 .83004 .83081 7.83157 .83234	9° 0′ 0.00650 .00651 .00654 0.00655 .00656 .00656 .00663 0.00664 .00663 0.00664 .00665 .00669 .00669 .00670 .00671 .00675 .00676 .00676	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.87185 .87185 .87185 .87261 7.87334 .87480 .87480 .87552 7.87625 .87697	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00733 .00735 .00736 0.00737 .00741 0.00742 .00743 .00744 .00744 .00745 .00755 .00753	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 22 22 20 18 16 14 12 10
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	0h 31m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .6983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67901 .68032 7.68173 .68264 .68355 .68445 7.68536	7° 30′ 0.00457 .00458 .00459 .00469 .00461 .00463 .00464 0.00467 .00468 0.00469 .00471 .00472 0.00473 .00474 .00478 .00478 .00481 .00483 .00484 0.00485	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71892 .71909 .71996 7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 7.72775 .72861 .72948 .73034 7.73119 .73205 .73291 .73377 7.73462 .73548 .73633 .73718 7.73803 .73889	0.00517 .00518 .00520 .00521 .00523 .00523 .00524 .00525 .00526 .00527 .00532 .00531 .00532 .00533 .00534 .00535 .00536 .00537 .00541 .00542 .00542 .00542 .00543 .00544 .00543	0h 35m 7.76487 .76569 .76652 .76734 7.76816 .76898 .76981 .77063 .777145 .77227 .77308 .77390 .777472 .77553 .77635 .77716 7.77798 .77879 .77960 .78041 7.78122 .78203 .78284 .78365 7.78446 .78526 .78688 7.78768 .78788	8° 30′ 0.00582 .00583 .00584 .00585 0.00586 .00587 .00589 .00593 .00594 0.00595 .00599 0.00598 .00599 0.00600 .00601 .00603 0.00604 .00603 0.00604 .00605 .00607 .00608 .00609 .00609 .00611 .00612	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82551 .82928 .83004 .83081 7.83157 .83336 7.83463 .83366 7.83463 .83386	9° 0′ 0.00650 .00651 .00653 .00654 0.00656 .00656 .00666 .00663 0.00664 .00665 .00668 0.00669 .00671 .00673 0.00671 .00679 .00680 .00682 .00683	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 7.87042 .87115 .87185 .87188 .87261 7.87334 .87407 .87480 .87552 7.87625 .87697 .87770 .87842 7.87987	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00728 .00730 .00731 0.00733 .00735 .00736 0.00741 0.00742 .00743 .00745 .00746 0.00747 .00748 .00756 .00755 .00756	60 58 56 54 52 50 48 46 44 42 40 38 36 34 28 26 22 20 18 16 11 12 10 -8 6 4 2
$ \begin{array}{c} \circ +15 \\ 2 \\ 4+16 \\ 6 \\ \hline 8+17 \\ 10 \\ 12+18 \\ 14 \\ 16+19 \\ 18 \\ \cdot 20+20 \\ 22 \\ \hline 24+21 \\ 26 \\ 28+22 \\ 30 \\ 32+23 \\ 34 \\ 36+24 \\ 38 \\ \hline 40+25 \\ 42 \\ 44+26 \\ 46 \\ 48+27 \\ 50 \\ 52+28 \\ 54 \\ \hline 66+29 \\ \end{array} $	0 h 31 m 7.65964 .66057 .66150 .66243 7.66336 .66429 .66521 .66614 7.66706 .66799 .66891 .66983 7.67075 .67167 .67259 .67351 7.67443 .67535 .67626 .67718 7.67809 .67900 .67991 .68082 7.68173 .68264 .68355 .68445 7.68536	7° 30′ 0.00457 .00458 .00459 .00460 0.00461 .00462 .00463 .00464 0.00465 .00468 0.00469 .00470 .00471 .00472 0.00473 .00474 .00475 .00476 0.00478 .00478 .00479 .00488 0.00483 .00483 .00483 .00484	0 h 33n 7.71385 .71473 .71560 .71648 7.71735 .71822 .71909 .71996 .7.72083 .72170 .72257 .72343 7.72430 .72516 .72603 .72689 .7.7275 .72861 .72948 .73034 7.73119 .73205 .73291 .73377 .73462 .73548 .73633 .73718 7.73803	0.00517 .00518 .00520 .00521 .00523 .00524 .00525 .00526 .00527 .00526 .00527 .00530 .00531 .00532 .00533 .00534 .00535 .00536 .00537 .00540 .00541 .00545 .00546 .00546	0 ^h 35 ^m 7.76487 .76569 .76652 .76734 7.768816 .76898 .76981 .77763 .777145 .77227 .77308 .77390 .77472 .77553 .77635 .77716 .777798 .77879 .78041 7.78122 .78203 .78284 .78365 .778446 .78526 .78607 .78688 7.78768	8° 30′ 0.00582 .00583 .00584 .00586 0.00586 .00587 .00589 .00592 .00593 .00594 0.00595 .00598 .00598 .00598 .00598 .00598 .00598 .00600 .00602 .00603 0.00604 .00605 .00608 0.00609 .00611 .00612 0.00613	7.81303 .81382 .81459 .81537 7.81615 .81693 .81771 .81848 7.81926 .82003 .82081 .82158 7.82235 .82313 .82390 .82467 7.82544 .82621 .82698 .82774 7.82551 .82928 .83004 .83081 7.83157 .83234 .83310 .83386 7.83463	9° 0′ 0.00650 .00651 .00653 .00654 0.00656 .00657 .00638 0.00660 .00663 0.00664 .00665 .00667 .00673 0.00674 .00675 .00689 .00683	7.85866 .85940 .86014 .86087 7.86161 .86235 .86309 .86382 7.86456 .86530 .86676 7.86750 .86823 .86896 .86969 7.87115 .87185 .87185 .87261 7.87334 .87407 .87480 .87552 7.87625 .87697 .87770 .87882 7.87915	9° 30′ 0.00722 .00723 .00725 .00726 0.00727 .00730 .00731 0.00732 .00733 .00736 0.00737 .00746 .00741 0.00742 .00743 .00745 .00745 .00750 .00750 .00750 .00755	50 58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16 14 12 10 -8 46 46 47 47 40 40 40 40 40 40 40 40 40 40 40 40 40

į.	0h 40m	10° 0′	Oh 42 m	10° 30′	0h 44m	11° 0′	0h 46m	11° 30′	Oh 48m	12° 0′	
										,	
s '	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0 0	7.88059	0.00760	7.92286	0.00837	7.96315	0.00919	8.00163	0.01004	8.03847	0.01093	60
2	.88131	.00761	.92354	.00839	.96380	.00920	.00226	.01005	.03907	.01094	58
4+1	.88203	.00762	.92423	.00840	.96446	.00921	.00289	.01007	.03967	.01096	56
6	.88276	.00763	.92492	.00841	.96511	.00923	.00351	.01008	.04027	.01097	54
8+2	7.88348	0.00765	7.92560	0.00843	7.96577	0.00924	8.00414	0.01010	8.04087	0.01099	52
10	.88419	.00766	.92629	.00844	.96642	.00926	.00476	.01011	.04147	.01100	50
12+ 3	.88491	.00767	.92697	.00845	.96707	.00927	.00539	.01012	.04207	.01102	48
14	.88563	.00768	.92766	.00847	.96773	.00928	.00601	.01014	.04267	.01103	46
16+4	7.88635	0.00770	7.92834 $.92902$	0.00848 .00849	7.96838	.00930	8.00664 $.00726$	0.01015 .01017	$8.04326 \\ .04386$	0.01105	44 42
18 20+ 5	.88707 88778	.00771	.92970	.00851	.96968	.00933	.00720	.01018	.04446	.01108	40
22	.88850	.00774	.93039	.00852	.97033	.00934	.00851	.01020	.04506	.01109	38
24+6	7.88921	0.00775	$\frac{7.93107}{7.93107}$	0.00853	7.97098	0.00935	8.00913	0.01021	8.04565	0.01111	36
26	.88993	.00776	.93175	.00855	.97163	.00937	.00975	.01023	.04625	.01112	34
28+7	.89064	.00777	.93243	.00856	.97228	.00938	.01037	.01024	.04684	.01114	32
30	.89135	.00779	.93311	.00857	.97293	.00940	.01099	.01026	.04744	.01115	30
32+8	7.89207	0.00780	7.93379	0.90859	7.97358	0.00941	8.01161	0.01027	8.04803	0.01117	28
34	.89278	.00781	.93447	.00860	.97423	.00942	.01223	.01029	.04863	.01118	26
36+9	.89349	.00783	.93514	.00861	.97478	.00944	.01285	.01030	.04922	.01120	24
38	.89420	.00784	.93582	.00863	.97552	.00945	.01347	.01032	.04981	.01122	22
40+10	7.89491	0.00785	7.93650	0.00864	7.97617	0.00947	8.01409	0.01033	8.05041	0.01123	20
42	.89562	.00786	.93717	.00865	.97681	.00948	.01471	.01034	.05100	.01125	18 16
44 +11 46	.89633 .89704	.00789	.93785 .93852	.00867	.97746 .97810	.00949 .00951	.01532	.01036	.05159 $.05218$.01126	14
48+12	7.89775	0.00790	7.93920	0.00869	7.97875	0.00952	8.01656	0.01033	8.05277	0.01129	12
50	.89846	.00792	.93987	.00871	.97939	.00954	.01717	.01040	.05336	.01131	10
52+13	.89916	.00793	.94055	.00872	.98003	.00955	.01779	.01042	.05395	.01132	8
54	.89987	.00794	.94122	.00873	.98068	.00956	.01840	.01043	.05454	.01134	6
56+14	7.90057	0.00795	7.94189	0.00875	7.98132	0.00958	8.01902	0.01045	8.05513	0.01135	4
58	7.90128	0.00797	7.94257	0.00876	7.98196	0.00959	8.01963	0.01046	8.05572	0.01137	2
	. 001	10	0.01	42	001	1	0.01	10-	001	11	
	23h	19m	23 h	177	23 h	15^m	23"	13 m	23"	11 m	
				,	1		1				
	0 h 41 m	10° 0′	Oh 43m	10° 30′	Oh 45m	11° 0′	Oh 47 m	11° 30′	Oh 49m	12° 0′	1
s ′		10° 0′	0h 43m			11° 0′	Oh 47 m	1	·	12° 0′	s
0+ 15	7.90198	0.00798	7.94324	0.00877	7.98260	0.00961	8.02025	0.01048	8.05631	0.01138	60
0+15	7.90198 .90269	0.00798 .00799	7.94324 .94391	0.00877 .00879	7.98260 .98325	0.00961 .00962	8.02025 .02086	0.01048 .01049	8.05631 .05690	0.01138 .01140	60 58
0+15 2 4+16	7.90198 .90269 .90339	0.00798 .00799 .00801	7.94324 .94391 .94458	0.00877 .00879 .00880	7.98260 .98325 .98389	0.00961 .00962 .00964	8.02025 .02086 .02148	0.01048 .01049 .01051	8.05631 .05690 .05749	0.01138 .01140 .01142	60 58 56
0+15 2 4+16 6	7.90198 .90269 .90339 .90409	0.00798 .00799 .00801 .00802	7.94324 .94391 .94458 .94525	0.00877 .00879 .00880 .00882	7.98260 .98325 .98389 .98453	0.00961 .00962 .00964 .00965	8.02025 .02086 .02148 .02209	0.01048 .01049 .01051 .01052	8.05631 .05690 .05749 .05808	0.01138 .01140 .01142 .01143	60 58 56 54
0+15 2 4+16 6 8+17	7.90198 .90269 .90339 .90409 7.90480	0.00798 .00799 .00801 .00802 0.00803	7.94324 .94391 .94458 .94525 7.94592	0.00877 .00879 .00880 .00882 0.00883	7.98260 .98325 .98389 .98453 7.98517	0.00961 .00962 .00964 .00965	8.02025 .02086 .02148 .02209 8.02270	0.01048 .01049 .01051 .01052 0.01054	8.05631 .05690 .05749 .05808 8.05866	0.01138 .01140 .01142 .01143 0.01145	60 58 56 54 52
0+15 2 4+16 6 8+17	7.90198 .90269 .90339 .90409 7.90480 .90550	0.00798 .00799 .00801 .00892 0.00803 .00804	7.94324 .94391 .94458 .94525 7.94592 .94659	0.00877 .00879 .00880 .00882 0.00883 .00884	7.98260 .98325 .98389 .98453 7.98517 .98581	0.00961 .00962 .00964 .00965 0.00966 .00968	8.02025 .02086 .02148 .02209 8.02270 .02331	0.01048 .01049 .01051 .01052 0.01054 .01055	8.05631 .05690 .05749 .05808 8.05866 .05925	0.01138 .01140 .01142 .01143 0.01145 .01146	60 58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620	0.00798 .00799 .00801 .00892 0.00803 .00804 .00806	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644	0.00961 .00962 .00964 .00965 0.00966 .00968 .00969	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984	0.01138 .01140 .01142 .01143 0.01145 .01146 .01148	60 58 56 54 52 50 48
0+15 2 4+16 6 8+17	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760	0.00798 .00799 .00801 .00892 0.00803 .00804	7.94324 .94391 .94458 .94525 7.94592 .94659	0.00877 .00879 .00880 .00882 0.00883 .00884	7.98260 .98325 .98389 .98453 7.98517 .98581	0.00961 .00962 .00964 .00965 0.00966 .00968	8.02025 .02086 .02148 .02209 8.02270 .02331	0.01048 .01049 .01051 .01052 0.01054 .01055	8.05631 .05690 .05749 .05808 8.05866 .05925	0.01138 .01140 .01142 .01143 0.01145 .01146	60 58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00810	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94926	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00888 .00890	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159	0.01138 .01140 .01142 .01143 0.01145 .01146 .01148 .01149 0.01151 .01152	58 56 54 52 50 48 46 44 42
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00810 .00811	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94926 .94992	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00888 .00890 .00891	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218	0.01138 .01140 .01142 .01143 0.01145 .01146 .01148 .01149 0.01151 .01152	58 56 54 52 50 48 46 44 42 40
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00810 .00811 .00812	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94926 .94992	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00888 .00890 .00891 .00892	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963	0.60961 .00962 .00964 .00965 0.00966 .00968 .00969 .00971 0.00972 .00974 .00976	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218	0.01138 .01140 .01142 .01143 0.01145 .01146 .01148 .011152 .01154 .01154	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00810 .00811 .00812	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94992 .95059 7.95126	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00888 .00890 .00891 .00892	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98702 7.98872 .98836 .98899 .98963 7.99027	0.00961 .00962 .00964 .00965 0.00966 .00968 .00969 .00971 0.00972 .00974 .00976	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276	0.01138 .01140 .01142 .01143 0.01145 .01146 .01148 .01149 0.01151 .01152 .01154 .01155	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 7.91039 .91109	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00810 .00811 .00812 0.00814	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94926 .94992 .95059 7.95126 .95192	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00891 .00892 0.00894 .00895	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99090	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974 .00976 0.00978	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697 8.02758 .02819	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01066	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 8.06335 .06393	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157	58 56 54 52 50 48 46 44 42 40 38 36 34
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039 .91109 .91179	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00810 .00811 .00812	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95126 .95192 .95259	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00891 .00892 0.00894 .00895 .00897	7.98260 .98325 .98389 .98453 7.98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99027 .99154	0.00961 .00962 .00964 .00965 0.00966 .00968 .00969 .00971 0.00972 .00974 .00976 0.00978	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697 8.02758 .02819 .02880	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01068 .01060 .01061 .01063 .01064 .01066 .01069	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06276 8.06335 .06335 .06451	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039 .91109 .91179 .91248	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00811 .00812 0.00814 .00816 .00816	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00888 .00890 .00891 .00892 0.00894 .00895 .00898	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217	0.00961 .00962 .00964 .00965 0.00966 .00968 .00969 .00971 .00975 .00976 0.00978 .00979 .00982	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02697 8.02758 .02819 .02880 .02941	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01066 .01066 .01067	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06393 .06451	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157 .01160 .01160	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90990 .90970 7.91039 .91109 .91179 .91248 7.91318	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00808 .00810 .00811 .00812	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391	0.00877 .00879 .00880 .00882 0.00883 .00884 .00887 0.00890 .00891 .00892 0.00894 .00895 .00898 0.00898	7.98260 .98325 .98389 .98453 7.98517 .98564 .98708 7.98772 .98836 .98899 .98963 7.99027 .99090 .99154 .99217 7.99281	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974 .00976 0.00978 .00979 .00982	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02697 8.02758 .02819 .02880 .02941 8.03001	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01066 .01067 .01069 .01070	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 8.06568	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01160 .01160 .01162	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039 .91109 .91179 .91248	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00818 .00812 0.00814 .00815 .00816 .00817 0.00819	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00888 .00890 .00891 .00892 0.00894 .00895 .00898	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217 7.99281	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974 .00976 0.00978 .00979 .00982 0.00984	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01066 .01067 .01069 .01070 .01072	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 8.06335 .06393 .06451 .06510 8.06568	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157 .01160 .01162	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039 .91109 .91248 7.91318 .91387 .91457 .91526	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00811 .00812 0.00814 .00816 .00817 0.00819	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00891 .00892 0.00894 .00895 .00898 0.00899 0.00899	7.98260 .98325 .98389 .98453 7.98517 .98564 .98708 7.98772 .98836 .98899 .98963 7.99027 .99090 .99154 .99217 7.99281	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974 .00976 0.00978 .00979 .00982	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02697 8.02758 .02819 .02880 .02941 8.03001	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01066 .01067 .01069 .01070	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 8.06568	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01160 .01160 .01162	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 7.91039 .91109 .91179 .91248 7.91318 .91387 .91457	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00811 .00812 0.00814 .00816 .00817 0.00819 .00820 .00821	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00887 0.00891 .00892 0.00894 .00898 0.00899 .00899 .00899 .00899	7.98260 .98325 .98389 .98453 7.98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974 .00976 0.00978 .00982 0.00984 .00985 .00988	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02697 8.02758 .02819 .02841 8.03001 .03062 .03123	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01069 .01070 0.01072 .01073 .01075 .01075	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 8.06335 .06393 .06451 .06568 .06668	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01160 .01162 0.01163 .01165	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90970 7.91039 .91109 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00818 .00812 0.00814 .00815 .00816 .00819 .00821 .00823 0.00823	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00890 .00891 .00892 0.00894 .00895 .00899 .00891 .00890 0.00890 .00903	7.98260 .98325 .98389 .98453 7.98517 .98544 .98708 7.98772 .98836 .98899 .98963 7.99027 .99090 .99154 .99217 7.99281 .99407 .99470 7.99534 .99597	0.00961 .00962 .00964 .00965 0.00966 .00969 .00971 0.00972 .00975 .00976 0.00978 .00982 0.00984 .00985 .00986 0.00989	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03183 8.03244 .03304	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01066 .01067 .01070 .01072 .01073 .01076 .01076 .01076 .01076	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 8.06568 .06684 .06684 .06742 8.068800 .06859	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157 .01160 .01162 .01163 .01165 .01168	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00812 0.00814 .00815 .00816 .00817 0.00819 .00823 0.00824 .00823	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00891 .00892 0.00894 .00895 .00897 .00898 0.00899 .00905 .00905 .00905	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660	0.00961 .00962 .00964 .00965 0.00966 .00969 .00971 0.00972 .00974 .00976 0.00978 .00979 .00982 0.00982 0.00988 .00988 .00989 .00989	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03183 8.03244 .03365	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01958 0.01060 .01061 .01063 .01064 0.01066 .01070 .01072 .01073 .01075 .01076 0.01078	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 .06510 8.06568 .06626 .06684 .06742 8.06800 .06859 .06859	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157 .01160 .01162 .01168 0.01168 0.01170 .01171	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90900 7.91039 .91109 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00811 .00815 .00816 .00817 0.00820 .00823 0.00824 .00825 .00827 .00828	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95728 .95728	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00891 0.00892 0.00894 .00895 .00898 0.00890 .00906 .00906 .00906	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .99963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660 .99723	0.00961 .00962 .00964 .00965 0.00966 .00969 .00971 0.00972 .00974 .00976 0.00976 0.00981 .00982 0.00984 .00988 0.00988 0.00989 .00991	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02697 8.02758 .02819 .02841 8.03001 .03062 .03123 .03183 8.03244 .03365 .03425	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01968 0.01061 .01063 .01064 0.01069 .01072 .01072 .01073 .01075 .01078 .01078 .01079	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 8.06335 .06393 .06451 .06510 8.06568 .06668 .06684 .06742 8.06800 .06859 .06917 .06975	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01160 .01162 0.01163 .01168 0.01171 .01171	60 58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 28 20 18 16 11
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 7.91039 .91109 .91179 .91248 7.91318 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00811 .00815 .00816 .00817 0.00819 .00821 .00823 0.00824 .00825 .00828	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788 .95854 .95920	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00890 .00891 .00892 .00894 .00895 .00899 .00901 .00902 .00903 .00905 .00908	7.98260 .98325 .98389 .98453 7.98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99027 .99154 .99217 7.99281 .99344 .99470 .99534 .99597 .99660 .99723 7.99786	0.00961 .00962 .00964 .00965 0.00966 .00968 .00971 0.00972 .00974 .00975 .00976 0.00978 .00984 .00984 .00988 0.00989 .00991 .00992	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02637 8.02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03183 8.03244 .03364 .03365 .03425 8.03486	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01960 .01061 .01063 .01064 .01069 .01072 .01072 .01073 .01075 .01078 .01079 .01081	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 8.06335 .06335 .06451 .06510 8.06568 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032	0.01138 .01140 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01160 .01162 0.01163 .01168 0.01170 .01171 .01173	60 58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 30 28 26 22 22 20 18 14 12
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90970 7.91039 .91109 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872 .91941	0.00798 .00799 .00801 .00803 .00803 .00804 .00806 .00807 0.00818 .00812 0.00814 .00815 .00816 .00817 0.00819 .00821 .00823 0.00828 .00824 .00827 .00828 .00828 .00828 .00829 .00829 .00829	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788 .95854 7.9588	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00890 .00891 .00892 0.00894 .00895 .00899 .00902 .00902 .00902 .00903 0.00908 .00909 .00909 .00909 .00909 .00909 .00909	7.98260 .98325 .98389 .98453 7.98517 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99027 .99154 .99217 7.99281 .99344 .99407 .99534 .99597 .99660 .99723 7.99786 .99849	0.00961 .00962 .00964 .00965 0.00966 .00969 .00971 0.00972 .00976 0.00976 0.00978 .00979 .00981 .00982 0.00984 .00988 0.00989 .00991 .00992 .00994 0.00991	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03123 .03183 8.03244 .03365 .03425 8.03446	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01064 0.01066 .01067 .01079 .01073 .01075 .01076 0.01078 .01079 .01079 .01082 0.01082	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 8.06568 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01160 .01162 0.01163 .01165 .01168 0.01171 .01173 .01174 .01176	60 58 56 52 50 48 46 44 42 42 38 36 32 30 28 26 22 22 20 18 16 11 12 10
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	7.90198 .90269 .90339 .90409 7.90480 .90550 .90690 7.90760 .90830 .90900 .90970 7.91039 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872 .91941 .92010	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00818 .00814 .00815 .00816 .00817 0.00819 .00829 .00823 .00824 .00829 .00829 .00829 .00829 .00831	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788 .95854 7.95920 .95986 .96052	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00890 .00891 .00892 0.00894 .00895 .00897 0.00898 0.00901 .00902 .00903 .00906 .00908 .00909 .00909 .00909 .00909 .00909	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 .99534 .99597 .9960 .99723 7.99786 .99849 .99912	0.00961 .00962 .00964 .00965 0.00966 .00975 .00971 0.00972 .00974 .00976 0.00978 .00979 .00984 .00985 .00988 0.00988 0.00989 .00995 .00991 .00992 .00994 0.00995	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02697 8.02758 .02819 .02840 .02941 8.03001 .03062 .03123 .03183 8.03244 .03365 .03425 8.03486 .03546 .03606	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01061 .01063 .01064 0.01066 .01067 .01070 .01072 .01073 .01076 .01076 .01078 .01079 .01081 .01082 0.01084 .01085 .01087	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 .06510 8.06568 .06626 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032 .07090 .07148	0.01138 .01140 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157 .01160 .01162 .01168 .01168 .01168 .01170 .01171 .01173 .01174 0.01177	60 58 56 54 52 50 48 46 44 42 42 38 36 34 32 20 20 18 16 14 11 10 8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54	7.90198 .90269 .90339 .90409 7.90480 .90550 .90690 7.90760 .90830 .90900 .90970 7.91039 .91109 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872 .91872 .91941 .92010 .92079	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00812 0.00814 .00815 .00816 .00817 0.00819 .00823 .00824 .00829 .00829 .00829 .00829 .00829 .00829 .00831 .00832 .00832	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95590 7.95656 .95722 .95788 .95854 7.95920 .95986 .96052 .96052	0.00877 .00879 .00880 .00882 0.00883 .00884 .00887 0.00891 .00892 0.00894 .00895 .00897 .00898 0.00899 0.00899 .00905 .00905 .00906 .00908 .00908 .00909 .00910 .00911 .00913 .00914	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660 .99723 7.99786 .99849 .99912 7.99975	0.00961 .00962 .00964 .00965 0.00966 .00969 .00971 0.00972 .00974 .00976 0.00978 .00979 .00981 .00984 .00988 0.00988 .00989 .00991 .00992 .00994 0.00995 .00994 0.00995	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02637 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03183 8.03244 .03365 .03425 8.03486 .03425 8.03486	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01066 .01067 .01069 .01070 .01072 .01073 .01076 0.01078 .01079 .01079 .01081 .01082 .01085 .01087 .01087	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 .06510 8.06568 .06626 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032 .07090 .07148 .07206	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01159 .01160 .01162 .01168 0.01168 0.01170 .01171 .01173 .01174 0.01176 .01177 .01179 .01180	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 22 20 21 18 16 14 12 10 8 6
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	7.90198 .90269 .90339 .90409 7.90480 .90550 .90690 7.90760 .90830 .90900 .90970 7.91039 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872 .91941 .92010	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00818 .00814 .00815 .00816 .00817 0.00819 .00829 .00823 .00824 .00829 .00829 .00829 .00829 .00831	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788 .95854 7.95986 .96052 .96118	0.00877 .00879 .00880 .00882 0.00883 .00884 .00891 0.00892 0.00894 .00895 .00898 0.00899 0.00899 0.00900 0.00910 .00902 .00908 .00908 .00908 .00908 .00910 .00912 .00914 0.00916	7.98260 .98325 .98389 .98453 7.98581 .98644 .98708 7.98772 .98836 .98899 .99963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660 .99723 7.99786 .99849 .99912 7.99975 8.00038	0.00961 .00962 .00964 .00965 0.00966 .00969 .00971 0.00972 .00974 .00976 0.00978 .00979 .00981 .00982 0.00988 0.00989 .00989 .00994 0.00995 .00997 .00997	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697 8.02758 .02819 .02841 8.03001 .03062 .03123 .03183 8.03244 .03365 .03425 8.03486 .03546 .03666 .03666 8.03727	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01966 .01061 .01063 .01064 0.01069 .01072 .01073 .01075 .01078 .01081 .01082 0.01084 .01087 .01088	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 8.06335 .06393 .06451 .06510 8.06568 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032 .07090 .07148 .07206	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01155 0.01157 .01160 .01163 .01166 .01168 0.01170 .01171 .01173 .01174 0.01176 .01177 .01179 .01180 0.01182	60 58 56 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 4 4 4 4 4 4 4 4 4 4 4 4
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90900 7.91039 .91109 .91179 .91248 7.91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872 .91941 .92010 .92079 7.92148	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00811 .00815 .00816 .00817 0.00819 .00820 .00823 0.00824 .00825 .00829 .00831 .00833	7.94324 .94391 .94458 .94525 7.94592 .94659 .94726 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95590 7.95656 .95722 .95788 .95854 7.95920 .95986 .96052 .96052	0.00877 .00879 .00880 .00882 0.00883 .00884 .00887 0.00891 .00892 0.00894 .00895 .00897 .00898 0.00899 0.00899 .00905 .00905 .00906 .00908 .00908 .00909 .00910 .00911 .00913 .00914	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660 .99723 7.99786 .99849 .99912 7.99975	0.00961 .00962 .00964 .00965 0.00966 .00969 .00971 0.00972 .00974 .00976 0.00978 .00979 .00981 .00984 .00988 0.00988 .00989 .00991 .00992 .00994 0.00995 .00994 0.00995	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03123 .03123 8.03244 .03365 .03425 8.03426 .03666 .03666 .03666 .03666	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.01060 .01066 .01067 .01069 .01070 .01072 .01073 .01076 0.01078 .01079 .01079 .01081 .01082 .01085 .01087 .01087	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 .06510 8.06568 .06626 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032 .07090 .07148 .07206	0.01138 .01140 .01143 .01145 .01146 .01149 0.01151 .01152 .01155 .01155 0.01157 .01160 .01163 .01168 0.01171 .01173 .01174 0.01176 .01177 .01179 .01179 .01179 .01179 .01179 .01180 0.01184	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 22 20 21 18 16 14 12 10 8 6
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 46 48+27 50 52 52 56 56 58 56 56 58	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872 .91941 .92010 .92079 7.92148 .92217 7.92286	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00812 0.00814 .00815 .00816 .00817 0.00819 .00829 .00821 .00829 .00829 .00829 .00829 .00831 .00832 .00833 0.00835 .00836	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788 .95854 7.95920 .95986 .96052 .96118 7.96183 .96249 7.96315	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00891 .00892 0.00894 .00895 .00896 .00905 .00906 .00906 .00908 .00901 .00910 .00912 .00916 .00919	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660 .99723 7.99786 .99849 .99912 7.99975 8.00038 .00100 8.00163	0.00961 .00962 .00964 .00965 0.00966 .00971 0.00972 .00974 .00976 0.00978 .00976 0.00982 0.00984 .00985 .00988 0.00989 .00991 .00995 .00999 .00991 .00995 .00999 .00991	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03183 8.03244 .03365 .03425 8.03486 .03666 .03666 .03666 .03666 .03666 8.03727 .03787 8.03847	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.91060 .01066 .01067 .01069 .01070 0.91072 .01073 .01076 0.91078 .01079 .01081 .01082 0.01084 .01085 .01087 .01088 0.01090 .01093	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 .06510 8.06568 .06626 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032 .07090 .07148 .07206 8.07264 .07322 8.07379	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157 .01159 .01160 .01162 .01168 0.01168 0.01170 .01171 .01173 .01174 0.01176 .01177 .01180 0.01185	60 58 56 52 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 14 12 10 8 6 4 4 2 2 2 2 2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 46 48+27 50 52 52 56 56 58 56 56 58	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90970 7.91039 .91109 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91665 .91665 .91734 .91803 7.91872 .91941 .92010 .92079 7.92148 .92217	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00812 0.00814 .00815 .00816 .00817 0.00819 .00829 .00821 .00829 .00829 .00829 .00829 .00831 .00832 .00833 0.00835 .00836	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788 .95854 7.95986 .96052 .96118 7.96183 .96249	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00891 .00892 0.00894 .00895 .00896 .00905 .00906 .00906 .00908 .00901 .00910 .00912 .00916 .00919	7.98260 .98325 .98389 .98453 7.98581 .98644 .98708 7.98772 .98836 .98899 .99027 .99027 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660 .99723 7.99786 .99849 .99912 7.99975 8.00038 .00100	0.00961 .00962 .00964 .00965 0.00966 .00971 0.00972 .00974 .00976 0.00978 .00976 0.00982 0.00984 .00985 .00988 0.00989 .00991 .00995 .00999 .00991 .00995 .00999 .00991	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03123 .03123 8.03244 .03365 .03425 8.03426 .03666 .03666 .03666 .03666	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.91060 .01066 .01067 .01069 .01070 0.91072 .01073 .01076 0.91078 .01079 .01081 .01082 0.01084 .01085 .01087 .01088 0.01090 .01093	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 .06510 8.06568 .06626 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032 .07090 .07148 .07206 8.07264 .07322 8.07379	0.01138 .01140 .01143 .01145 .01146 .01149 0.01151 .01152 .01155 .01155 0.01157 .01160 .01163 .01168 0.01171 .01173 .01174 0.01176 .01177 .01179 .01179 .01179 .01179 .01179 .01180 0.01184	60 58 56 52 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 14 12 10 8 6 4 4 2 2 2 2 2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 44+26 46 46 46 48+27 50 52+28 54 56+29 58	7.90198 .90269 .90339 .90409 7.90480 .90550 .90620 .90690 7.90760 .90830 .90900 .90970 7.91039 .91179 .91248 7.91318 .91387 .91457 .91526 7.91596 .91665 .91734 .91803 7.91872 .91941 .92010 .92079 7.92148 .92217 7.92286	0.00798 .00799 .00801 .00802 0.00803 .00804 .00806 .00807 0.00810 .00812 0.00814 .00815 .00816 .00817 0.00819 .00829 .00821 .00829 .00829 .00829 .00829 .00831 .00832 .00833 0.00835 .00836	7.94324 .94391 .94458 .94525 7.94592 .94659 .94792 7.94859 .94992 .95059 7.95126 .95192 .95259 .95325 7.95391 .95458 .95524 .95590 7.95656 .95722 .95788 .95854 7.95920 .95986 .96052 .96118 7.96183 .96249 7.96315	0.00877 .00879 .00880 .00882 0.00883 .00884 .00886 .00891 .00892 0.00894 .00895 .00896 .00905 .00906 .00906 .00908 .00901 .00910 .00912 .00916 .00919	7.98260 .98325 .98389 .98453 7.98517 .98581 .98644 .98708 7.98772 .98836 .98899 .98963 7.99027 .99154 .99217 7.99281 .99344 .99407 .99470 7.99534 .99597 .99660 .99723 7.99786 .99849 .99912 7.99975 8.00038 .00100 8.00163	0.00961 .00962 .00964 .00965 0.00966 .00971 0.00972 .00974 .00976 0.00978 .00976 0.00982 0.00984 .00985 .00988 0.00989 .00991 .00995 .00999 .00991 .00995 .00999 .00991	8.02025 .02086 .02148 .02209 8.02270 .02331 .02392 .02453 8.02515 .02576 .02637 .02697 8.02758 .02819 .02880 .02941 8.03001 .03062 .03123 .03183 8.03244 .03365 .03425 8.03486 .03666 .03666 .03666 .03666 .03666 .036727 .03787 8.03847	0.01048 .01049 .01051 .01052 0.01054 .01055 .01957 .01058 0.91060 .01066 .01067 .01069 .01070 0.91072 .01073 .01076 0.91078 .01079 .01081 .01082 0.01084 .01085 .01087 .01088 0.01090 .01093	8.05631 .05690 .05749 .05808 8.05866 .05925 .05984 .06042 8.06101 .06159 .06218 .06276 8.06335 .06393 .06451 .06510 8.06568 .06626 .06684 .06742 8.06800 .06859 .06917 .06975 8.07032 .07090 .07148 .07206 8.07264 .07322 8.07379	0.01138 .01140 .01142 .01143 0.01145 .01146 .01149 0.01151 .01152 .01154 .01155 0.01157 .01159 .01160 .01162 .01168 0.01168 0.01170 .01171 .01173 .01174 0.01176 .01177 .01180 0.01185	60 58 56 52 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 14 12 10 8 6 4 4 2 2 2 2 2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4

1					•				•		
į	Oh 50m	12° 30′	Oh 52 m	13° 0′	Oh 54m	13° 30′	Oh 56 m	14° 0′	Oh 58 m	14° 30′	
s '	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
0 0	8.07379	0.01185	8.10772	0.01282	8.14035	0.01382	8.17179	0.01485	8.20211	0.01593	60
2	.07437	.01187	.10827	.01283	.14089	.01383	.17230	.01487	.20261	.01594	58
4+ 1	.07494 $.07552$.01188	.10883	.01286	.14142	.01385 .01387	.17282 .17333	.01489	.20310	.01596 .01598	56 54
8+ 2	8.07610	0.01192	8.10993	0.01288	8.14248	0.01388	8.17384	0.01492	8.20410	0.01600	52
10	.07667	.01193	.11049	.01290	.14302	.01390	.17436	.01494	.20459	.01602	50
12+ 3	.07725	.01195	.11104	.01291	.14355	.01392	.17487	.01496	.20509	.01604	48
14	.07782	.01196	.11159	.01293	.14408	.01393	.17538	.01498	.20558	.01605	46
16+ 4 18	$8.07839 \\ .07897$	0.01198 .01199	8.11214 $.11269$	0.01295 01296	8.14461 $.14514$	0.01395 .01397	8.17590 .17641	0.01499 .01501	8.20608 .20657	0.01607 .01609	44 42
20+ 5	.07954	.01201	.11324	.01298	.14567	.01399	.17692	.01503	.20706	.01611	40
22	.08011	.01203	.11379	.01300	.14620	.01400	.17743	.01505	.20756	.01613	38
24+ 6	8.08069	0.01204	8.11435	0.01301	8.14673	0.01402	8.17794	0.01506	8.20805	0.01615	36
26	.08126	.01206	.11490	.01303	.14726	.01404	.17845	.01508	.20854	.01616	34
28+ 7 30	.08183 .08240	.01207	.11544 .11599	.01305 .01306	.14779 .14832	.01405 .01407	.17896 .17947	.01510 .01512	.20904 .20953	.01618 .01620	32 30
32+8	8.08297	0.01211	8.11654	0.01308	8.14885	0.01409	8.17998	0.01513	8.21002	0.01622	28
34	.08354	.01212	.11709	.01309	.14938	.01411	.18049	.01515	.21051	.01624	26
36+ 9	.08411	.01214	.11764	.01311	.14991	.01412	.18100	.01517	.21100	.01626	24
38	.08468	.01215	$\frac{.11819}{2.11272}$.01313	.15043	.01414	.18151	.01519	.21149	.01627	22
40+ 10 42	$8.08525 \\ .08582$	0.01217 .01218	8.11873 $.11928$	0.01314 .01316	$8.15096 \\ .15149$	0.01416 .01417	8.18202 .18253	0.01521 .01522	8.21199 .21248	0.01629 .01631	20 18
44+11	.08639	.01220	.11983	.01317	.15201	.01419	.18303	.01524	.21297	.01633	16
46	.08696	.01222	.12038	.01319	.15254	.01421	.18354	.01526	.21346	.01635	14
48+12	8.08752	0.01223	8.12092	0.01321	8.15307	0.01423	8.18405	0.01528	8.21395	0.01637	12
50 52+ 13	08809 08866	.01225	.12147 $.12201$.01323	.15359 $.15412$.01424 .01426	.18455	.01530 .01531	.21444	.01638 .01640	10 8
54	.08922	.01228	.12256	.01326	.15464	.01428	.18557	.01533	.21541	.01642	6
56+14	8.08979	0.01230	8.12310	0.01328	8.15517	0.01429	8.18607	0.01535	8.21590	0.01644	4
58	8.09036	0.01231	8.12365	0.01329	8.15569	0.01431	8.18658	0.01537	8.21639	0.01646	2
	23 h	9 m	23 h	7 m	234	5 m	23 h	3 m	23h	1 m	
	0h 51m	12° 30′	Oh 53 m	13° 0′	Oh 55m	13° 30′	Oh 57 m	140 0/	Oh 59m	14° 30′	
s ' 0+15	8.09092	0.01233	8.12419	0.01331	8.15622	0.01433	8.18709				S
2	.09149	.01234	.12473	.01333	.15674	.01435	.18759	0.01538 .01540	8.21688	0.01648 .01650	60 58
4+16	.09205	.01236	.12528	.01334	.15726	.01436	.18810	.01542	.21785	.01651	56
6	.09262	.01238	.12582	.01336	.15779	.01438	.18860	.01544	.21834	.01653	54
8+17	8.09318		O TOPOP !	0.01338		0.01440	O TOOTO		-2100T	*01000	
10 12+ 1 8		0.01239	8.12636		8.15831		8.18910	0.01546	8.21883	0.01655	52
120 100	.09374	.01241	.12691	.01339	.15883	.01442	.18961	.01547	8.21883 .21932	0.01655 .01657	52 50
	.09431	.01241 .01243	.12691 $.12745$.01339 .01341	.15883 .15935	.01442 .01443	.18961 .19011	.01547 .01549	8.21883 .21932 .21980	0.01655 .01657 .01659	52 50 48
14 16 +19		.01241 .01243 .01244 0.01246	.12691	.01339	.15883	.01442	.18961 .19011 .19062 8.19112	.01547 .01549 .01551 0.01553	8.21883 .21932 .21980 .22029 8.22077	0.01655 .01657	52 50
14 16 +19 18	.09431 .09487 8.09543 .09600	.01241 .01243 .01244 0.01246 .01247	$\begin{array}{c} .12691 \\ .12745 \\ .12799 \\ 8.12853 \\ .12907 \end{array}$.01339 .01341 .01343 0.01344 .01346	.15883 .15935 .15987 8.16040 .16092	.01442 .01443 .01445 0.01447 .01448	.18961 .19011 .19062 8.19112 .19162	.01547 .01549 .01551 0.01553 .01555	8.21883 .21932 .21980 .22029 8.22077 .22126	0.01655 .01657 .01659 .01661 0.01663 .01664	52 50 48 46 44 42
14 16+ 19 18 20+ 20	.09431 .09487 8.09543 .09600 .09656	.01241 .01243 .01244 0.01246 .01247 .01249	$\begin{array}{c} .12691 \\ .12745 \\ .12799 \\ 8.12853 \\ .12907 \\ .12961 \end{array}$.01339 .01341 .01343 0.01344 .01346 .01348	.15883 .15935 .15987 8.16040 .16092 .16144	.01442 .01443 .01445 0.01447 .01448 .01450	.18961 .19011 .19062 8.19112 .19162 .19212	.01547 .01549 .01551 0.01553 .01555	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175	0.01655 .01657 .01659 .01661 0.01663 .01664 .01666	52 50 48 46 44 42 40
14 16 +19 18 20 +20 22	.09431 .09487 8.09543 .09600 .09656	.01241 .01243 .01244 0.01246 .01247 .01249 .01251	.12691 .12745 .12799 8.12853 .12907 .12961 .13015	.01339 .01341 .01343 0.01344 .01346 .01348	.15883 .15935 .15987 8.16040 .16092 .16144 .16196	.01442 .01443 .01445 0.01447 .01448 .01450 .01452	.18961 .19011 .19062 8.19112 .19162 .19212 .19263	.01547 .01549 .01551 0.01553 .01555 .01556	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223	0.01655 .01657 .01659 .01661 0.01663 .01664 .01666	52 50 48 46 44 42 40 38
14 16+ 19 18 20+ 20 22 24+ 21 26	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824	.01241 .01243 .01244 0.01246 .01247 .01249 .01251 0.01252 .01254	$\begin{array}{c} .12691 \\ .12745 \\ .12799 \\ 8.12853 \\ .12907 \\ .12961 \\ .13015 \\ \hline 8.13069 \\ .13123 \\ \end{array}$.01339 .01341 .01343 0.01344 .01346 .01349 0.01351 .01353	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363	.01547 .01549 .01551 0.01553 .01555	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320	0.01655 .01657 .01659 .01661 0.01663 .01664 .01666	52 50 48 46 44 42 40
14 16+19 18 20+20 22 24+21 26 28+22	$\begin{array}{c} .09431 \\ .09487 \\ 8.09543 \\ .09600 \\ .09656 \\ .09712 \\ \hline 8.09768 \\ .09824 \\ .09880 \\ \end{array}$.01241 .01243 .01244 0.01246 .01247 .01249 .01251 0.01252 .01254	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177	.01339 .01341 .01343 0.01344 .01346 .01349 0.01351 .01353 .01354	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413	.01547 .01549 .01551 0.01553 .01555 .01556 .01558 0.01560 .01562 .01564	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .2223 8.22272 .22320 .22368	0.01655 .01657 .01659 .01661 0.01663 .01664 .01666 .01668	52 50 48 46 44 42 40 38 36 34 32
14 16+19 18 20+20 22 24+21 26 28+22 30	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936	.01241 .01243 .01244 0.01246 .01247 .01249 .01251 0.01252 .01254 .01255 .01257	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231	.01339 .01341 .01343 0.01344 .01346 .01349 0.01351 .01353 .01354 .01356	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413 .19463	.01547 .01549 .01551 0.01553 .01555 .01556 .01558 0.01560 .01562 .01564 .01565	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417	0.01655 .01657 .01659 .01661 0.01663 .01664 .01666 .01668 0.01670 .01672 .01674 .01676	52 50 48 46 44 42 40 38 36 34 32 30
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992	.01241 .01243 .01244 0.01246 .01247 .01251 0.01252 .01254 .01255 .01257 0.01259	$\begin{array}{c} .12691 \\ .12745 \\ .12799 \\ 8.12853 \\ .12907 \\ .12961 \\ .13015 \\ \hline 8.13069 \\ .13123 \\ .13177 \\ .13231 \\ 8.13285 \end{array}$.01339 .01341 .01343 0.01344 .01346 .01349 0.01351 .01353 .01354 .01356 0.01358	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457 .01459 0.01461	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413 .19463 8.19513	.01547 .01549 .01551 0.01553 .01555 .01556 .01558 0.01560 .01562 .01564 .01565 0.01567	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465	0.01655 .01657 .01659 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677	52 50 48 46 44 42 40 38 36 34 32 30 28
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104	.01241 .01243 .01244 0.01246 .01247 .01249 .01251 0.01252 .01254 .01255 .01257 0.01259 .01260 .01262	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13339 .13392	.01339 .01341 .01343 .01344 .01346 .01349 .01351 .01353 .01354 .01356 .01358 .01360 .01361	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16508 .16559	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457 .01457 .01461 .01462 .01464	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413 .19463 8.19513 .19563 .19613	.01547 .01549 .01551 0.01553 .01555 .01556 .01558 0.01560 .01562 .01564 .01565	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417	0.01655 .01657 .01659 .01661 0.01663 .01664 .01666 .01668 0.01670 .01672 .01674 .01676	52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160	.01241 .01243 .01244 .0.01246 .01247 .01251 0.01252 .01255 .01255 .01257 0.01259 .01262 .01264	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13339 .13392 .13446	.01339 .01341 .01343 .0.01344 .01346 .01349 .01351 .01353 .01354 .01356 0.01356 0.01361 .01361	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16508 .16559 .16611	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457 .01459 0.01461 .01462 .01464	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19463 8.19413 .19463 8.19513 .19663	.01547 .01549 .01553 .01555 .01556 .01558 .01562 .01564 .01565 .01567 .01567 .01567	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .23320 .22368 .22417 8.22465 .22514 .22562 .22610	0.01655 .01657 .01659 .01661 0.01663 .01664 .01666 .01668 0.01670 .01672 .01674 .01676 0.01679 .01679 .01681 .01683	52 50 48 46 44 42 40 38 36 34 32 30 28 26 22
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216	.01241 .01243 .01244 0.01246 .01247 .01251 0.1255 .01252 .01255 .01257 0.01259 .01260 .01262 .01264	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13399 .13392 .13446 8.13500	.01339 .01341 .01343 .0.01344 .01346 .01349 0.01351 .01353 .01354 .01356 0.01366 .01361 .01363	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16508 .16559 .16611	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457 .01459 0.01461 .01462 .01464	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413 .19463 8.19513 .19563 .19613 .19663 8.19713	.01547 .01549 .01553 .01555 .01556 .01558 .01560 .01562 .01564 .01565 0.01567 .01567 .01571 .01573	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610	0.01655 .01657 .01659 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677 .01679 .01681 .01683	52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216	.01241 .01243 .01244 0.01246 .01247 .01249 .01251 0.01252 .01257 0.01257 0.01259 .01260 .01264 0.01265 .01267	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13339 .13392 .13446 8.13500 .13554	.01339 .01341 .01343 .0.01344 .01346 .01349 0.01351 .01353 .01354 .01356 0.01363 .01363	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16559 .16611 8.16663 .16715	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457 .01459 0.01461 .01462 .01464 0.01468	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413 .19463 8.19513 .19663 .19663 .19663 8.19713 .19763	.01547 .01549 .01551 .0.1553 .01556 .01558 .01560 .01562 .01564 .01565 .01567 .01569 .01571 .01573	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658	0.01655 .01657 .01659 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677 .01683 0.01683	52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216	.01241 .01243 .01244 0.01246 .01247 .01251 0.1255 .01252 .01255 .01257 0.01259 .01260 .01262 .01264	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13399 .13392 .13446 8.13500	.01339 .01341 .01343 .0.01344 .01346 .01349 0.01351 .01353 .01354 .01356 0.01366 .01361 .01363	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16508 .16559 .16611	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457 .01459 0.01461 .01462 .01464	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413 .19463 8.19513 .19563 .19613 .19663 8.19713	.01547 .01549 .01553 .01555 .01556 .01558 .01560 .01562 .01564 .01565 0.01567 .01567 .01571 .01573	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755	0.01655 .01657 .01659 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677 .01679 .01681 .01683	52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216 .10271 .10327 .10383 8.10439	.01241 .01243 .01244 .01246 .01247 .01251 0.01252 .01255 .01257 0.01259 .01260 .01262 .01264 0.01265 .01267 .01268	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13399 .13446 8.13500 .13554 .13607 .13661 8.13714	.01339 .01341 .01343 .0.01344 .01348 .01349 0.01351 .01353 .01354 .01356 0.01365 .01363 0.01365 .01366 .01367 .01367 .01367	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16508 .16559 .16611 8.16663 .16715 .16766 .16818 8.16870	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01455 .01457 .01459 0.01461 .01462 .01464 .01466 0.01468 .01469 .01473 0.01473	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19463 8.19513 .19463 .19613 .19663 8.19713 .19663 8.19713 .19813 .19863 8.19913	.01547 .01549 .01553 .01555 .01556 .01558 .01562 .01564 .01565 .01567 .01567 .01571 .01573 .01574 .01578 .01578	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755 .22803 8.22851	0.01655 .01657 .01659 .01661 .0.01663 .01664 .01668 .01668 0.01672 .01674 .01676 0.01677 .01683 0.01683 0.01685 .01689 0.01691 0.01691	52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216 .10271 .10327 .10383 8.104439 .10494	.01241 .01243 .01244 0.01246 .01247 .01251 0.1252 .01254 .01255 .01257 0.01259 .01260 .01264 0.01265 .01267 .01268 .01268 .01270 .01272 .01273	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13392 .13446 8.13500 .13554 .13607 .13661 8.13714 .13768	.01339 .01341 .01343 .0.01344 .01346 .01349 0.01351 .01356 0.01356 0.01363 0.01363 0.01365 .01366 .01366 .01367 0.01367 .01371	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16508 .16559 .16611 8.16663 .16715 .16766 .16818 8.16870 .16921	.01442 .01443 .01445 0.01447 .01448 .01450 .01452 0.01454 .01457 .01459 0.01461 .01462 .01466 0.01468 .01469 .01473 .01473 .01473	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19413 .19463 8.19513 .19613 .19663 8.19713 .19763 .19813 .19863 8.19913 .19963	.01547 .01549 .01553 .01555 .01556 .01558 .01560 .01562 .01564 .01565 0.01567 .01567 .01573 0.01574 .01578 .01578 .01578	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755 .22803 8.22851 .22899	0.01655 .01657 .01659 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677 .01681 .01683 0.01685 .01687 .01689 .01691 0.01692	52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216 .10271 .10327 .10383 8.10439 .10494 .10550	.01241 .01243 .01244 0.01246 .01247 .01249 .01251 0.01252 .01257 0.01257 0.01259 .01260 .01262 .01264 0.01265 .01267 .01268 .01267 .01268 .01270 .01272 .01273	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13392 .13446 8.13500 .13554 .13607 .13661 8.13714 .13768 .13822	.01339 .01341 .01343 .01344 .01346 .01349 0.01353 .01354 .01356 0.01358 .01360 .01361 .01363 0.01365 .01368 .01368 .01370 .01371 .01373	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16559 .16611 8.16663 .16715 .16766 .16818 8.16870 .16973	.01442 .01443 .01445 .0.01447 .01448 .01450 .01452 .0.01457 .01459 .0.1461 .01462 .01464 .01466 .0.01468 .01469 .01471 .01473 .0.01475 .0.01475	.18961 .19011 .19062 8.19112 .19162 .19212 .19263 8.19313 .19363 .19463 8.19513 .19663 .19663 .19663 8.19713 .19763 .19813 .19863 .19913 .19963 .20012	.01547 .01549 .01553 .01555 .01556 .01558 .01560 .01562 .01564 .01565 .01567 .01569 .01571 .01573 .01574 .01578 .01580 .01580 .01580 .01580	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755 .22803 8.22851 .22899 .22947	0.01655 .01657 .01659 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677 .01681 .01683 0.01685 .01687 .01689 .01694 .01694 .01696	52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16 14 11 10 8
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216 .10271 .10327 .10383 8.10439 .10494 .10550 .10605	.01241 .01243 .01244 .01246 .01247 .01249 .61251 .01252 .01254 .01255 .01257 .01269 .01264 .01265 .01267 .01267 .01267 .01273 .01273 .01273	.12691 .12745 .12799 8.12853 .12907 .12961 8.13015 8.13069 .13123 .13177 .13231 8.13285 .13392 .13446 8.13500 .13554 .13607 .13661 8.13714 .13768 8.13822 .13875	.01339 .01341 .01344 .01346 .01348 .01349 .01351 .01353 .01354 .01356 .01366 .01363 .01363 .01365 .01366 .01368 .01371 .01373 .01373	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16352 .16404 8.16456 .16508 .16559 .16611 8.16663 .16715 .16766 .16818 8.16870 .16921 .16921 .16973 .17024	.01442 .01443 .01445 .0.01447 .01450 .01452 .0.01452 .0.01457 .01457 .01459 .0.01461 .01462 .01464 .01466 .0.01469 .01473 .0.01473 .0.01478 .0.01478	.18961 .19011 .19062 8.19112 .19162 .19213 .19263 8.19313 .19463 8.19513 .19663 8.19513 .19663 8.19713 .19863 8.19913 .19963 8.19913 .19963 8.19913 .20012 .20062	.01547 .01549 .01553 .01555 .01556 .01558 .01558 .01562 .01564 .01565 .01565 .01567 .01574 .01573 .01574 .01578 .01580 .01582 .01582 .01582	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755 .22803 8.22891 .22899 .22947 .22996	0.01655 .01657 .01657 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677 .01685 .01683 0.01685 .01689 .01691 0.01692 .01694 .01698	52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16 14 11 11 10 8 6
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216 .10271 .10327 .10383 8.10439 .10494 .10550	.01241 .01243 .01244 0.01246 .01247 .01249 .01251 0.01252 .01257 0.01257 0.01259 .01260 .01262 .01264 0.01265 .01267 .01268 .01267 .01268 .01270 .01272 .01273	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13392 .13446 8.13500 .13554 .13607 .13661 8.13714 .13768 .13822	.01339 .01341 .01343 .01344 .01346 .01349 0.01353 .01354 .01356 0.01358 .01360 .01361 .01363 0.01365 .01368 .01368 .01370 .01371 .01373	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16559 .16611 8.16663 .16715 .16766 .16818 8.16870 .16973	.01442 .01443 .01445 .0.01447 .01448 .01450 .01452 .0.01457 .01459 .0.1461 .01462 .01464 .01466 .0.01468 .01469 .01471 .01473 .0.01475 .0.01475	.18961 .19011 .19062 8.19112 .19162 .19213 8.19313 .19363 .19413 .19463 8.19513 .19663 8.19713 .19663 8.19713 .19863 8.19913 .19963 .20012 .20062 8.20112	.01547 .01549 .01553 .01555 .01556 .01558 .01560 .01562 .01564 .01565 .01567 .01569 .01571 .01573 .01574 .01578 .01580 .01580 .01580 .01580	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755 .22803 8.22851 .22899 .22947	0.01655 .01657 .01659 .01661 0.01663 .01664 .01668 0.01670 .01672 .01674 .01676 0.01677 .01681 .01683 0.01685 .01687 .01689 .01694 .01694 .01696	52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16 14 11 10 8
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216 .10271 .10327 .10383 8.10439 .10494 .10550 .10605	.01241 .01243 .01244 0.01246 .01247 .01252 .01251 0.01252 .01255 .01257 0.01259 .01264 0.01262 .01264 0.01265 .01267 .01273 .01273	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13392 .13446 8.13500 .13554 .13607 .13661 8.13714 .13682 .13825 .13825 .13825 8.13928	.01339 .01341 .01343 .01344 .01346 .01348 .01351 .01353 .01354 .01356 .01366 .01363 .01365 .01365 .01366 .01373 .01373 .01373	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16352 .16404 8.16456 .16508 .16559 .16611 8.16663 .16715 .16766 .16818 8.16870 .16921 .16973 .17024 8.17076	.01442 .01443 .01445 .0.01447 .01450 .01452 .0.01455 .01457 .01457 .01462 .01464 .01466 .0.01468 .01469 .01471 .01473 .0.01475 .01476 .01478 .01478 .01480 .01482	.18961 .19011 .19062 8.19112 .19162 .19263 8.19313 .19363 .19413 .19463 8.19513 .19663 8.19713 .19763 .19763 8.19913 .19863 8.19913 .19963 8.19913 .20012 .20062 8.20112	.01547 .01549 .01553 .01555 .01556 .01558 .01560 .01562 .01564 .01565 .01565 .01573 .01573 .01574 .01578 .01578 .01582 .01582 .01584	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755 .22803 8.22893 8.22851 .22899 .22996 8.23044	0.01655 .01657 .01659 .01661 .0.01663 .01664 .01666 .01668 0.01670 .01672 .01674 .01676 0.01679 .01683 0.01683 0.01685 .01687 .01689 .01691 0.01692 .01694 .01698 0.01698	52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6
14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	.09431 .09487 8.09543 .09600 .09656 .09712 8.09768 .09824 .09880 .09936 8.09992 .10048 .10104 .10160 8.10216 .10271 .10327 .10383 8.10439 .10494 .10550 .10665 8.10661 .10716	.01241 .01243 .01244 .0.01246 .01247 .01249 .61251 .01252 .01255 .01257 .01259 .01260 .01262 .01264 .01265 .01268 .01270 .01272 .01273 .01273 .01273 .01275	.12691 .12745 .12799 8.12853 .12907 .12961 .13015 8.13069 .13123 .13177 .13231 8.13285 .13399 .13446 8.13500 .13554 8.13500 .13667 .13667 .13661 8.13714 .13768 .13822 .13825 .13828 .13928 .13928	.01339 .01341 .01344 .01346 .01348 .01349 .01353 .01354 .01356 .01366 .01363 .01363 .01363 .01366 .01368 .01370 .01371 .01373 .01375 .01376 .01378	.15883 .15935 .15987 8.16040 .16092 .16144 .16196 8.16248 .16300 .16352 .16404 8.16456 .16508 .16559 .16611 8.16663 .16715 .16766 .16818 8.16870 .16921 .16973 .17024 8.17076 .17127	.01442 .01443 .01445 .0.01447 .01450 .01452 .0.01452 .0.01455 .01457 .01459 .0.1461 .01466 .0.1468 .0.1469 .0.1473 .0.01475 .0.1478 .0.1478 .0.1478 .0.1478 .0.1480 .0.01483 .0.01485	.18961 .19011 .19062 8.19112 .19162 .19213 8.19313 .19363 .19413 .19463 8.19513 .19663 8.19713 .19663 8.19713 .19863 8.19913 .19963 .20012 .20062 8.20112	.01547 .01549 .01553 .01555 .01556 .01558 .01562 .01564 .01565 .01565 .01567 .01571 .01573 .01574 .01578 .01580 .01582 .01582 .01582 .01585 .01585 .01587	8.21883 .21932 .21980 .22029 8.22077 .22126 .22175 .22223 8.22272 .22320 .22368 .22417 8.22465 .22514 .22562 .22610 8.22658 .22707 .22755 .22803 8.22851 .22899 .22947 .22996 8.23044 .23092	0.01655 .01657 .01657 .01663 .01664 .01663 .01668 0.01670 .01672 .01674 .01676 .01677 .01683 .01683 .01683 .01685 .01689 .01691 0.01692 .01694 .01698 .01700 .01702 .01702	52 50 48 46 44 42 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6

Table Tabl		41.0-	150.0/	13.1-	150 15/	11.00	150 20/	1 h 2 m	150 45/	1 h l m	16° 0′	
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7 23144 0.1705 24914 0.1705 225994 0.1818 2.2375 0.1878 2.2375 0.1879 2.2375 0.1879 2.2375 0.1707 2.2468 0.1704 2.26040 0.1821 2.2738 0.1879 2.2759 0.1939 5.8 5 2.3259 0.1708 2.24685 0.1764 2.26040 0.1822 2.2743 0.1818 2.28523 0.1919 2.666 2.3283 0.1701 2.4708 0.1016 2.2110 0.1824 2.7489 0.1833 2.8846 0.1013 5.4 9 2.3355 0.111 2.4759 0.1016 2.2110 0.1827 2.7557 0.1885 2.28581 0.1014 5.2 10 2.3379 0.113 2.4803 0.1717 2.6026 0.1829 2.7550 0.1887 2.28936 0.1014 5.2 11 2.23457 0.1115 2.4826 0.1717 2.6026 0.1828 2.28958 0.1014 5.2												_
2 2318S 0.1706 24614 0.1704 26040 0.1821 27320 0.1857 2.2736 0.1894 57 1 7 8.2325 0.1707 8.24611 0.1704 2.6004 0.1821 2.7443 0.1881 8.25801 .01941 6 5 2.2325 0.1708 8.24855 0.1706 2.6010 0.1824 2.7450 0.1883 2.8846 0.1942 5.6 7 2.3337 0.1711 8.24755 0.1768 2.61160 0.1826 2.67551 0.1883 2.8848 0.1944 5.3 9 2.3355 0.1712 2.24779 0.1769 2.6179 0.1827 2.7557 0.1886 2.2931 0.1946 6.1 11 2.23379 0.1713 2.4850 0.1771 2.6263 0.1828 2.7550 0.1887 2.2936 0.1945 2.2 15 2.24375 0.1712 2.4826 0.1772 2.62429 0.1834 2.2 2.2												
The color												
1 ↑ 1 √ 8.23235 9.01707 8.24661 01746 262064 01822 8.27443 0.1881 8.28801 0.1942 55 6 23233 0.1090 24708 0.1766 26110 0.1824 27490 0.1883 22846 0.1942 55 7 23233 0.1090 24708 0.1766 26110 0.1824 27499 0.1883 22846 0.1943 54 27 28 23 23 24 24779 0.1767 26133 0.1825 2.7512 0.1884 23868 0.1944 53 27 27 27 27 27 27 27 2												
5 23259 0.10708 2.44655 0.1766 2.2087 0.10824 2.7489 0.1883 2.8866 0.1943 5.4 7 2.3307 0.1070 2.4732 0.1167 2.2013 0.1825 2.7752 0.1884 2.8868 0.1944 5.7 9 2.3355 0.1171 2.4749 0.1768 2.20166 0.1826 2.87534 0.1886 2.88913 0.01945 5.2 10 2.3379 0.1713 2.4749 0.1702 2.6203 0.1828 2.27507 0.1886 2.8951 0.01947 5.0 11 2.3403 0.1714 2.4826 0.1771 2.6203 0.1829 2.7603 0.1887 2.8785 2.8958 0.01947 5.0 15 2.2447 0.1715 2.4480 0.1772 2.26249 0.1832 2.27603 0.1882 2.9903 0.01931 4 14 2.2552 0.1719 2.92455 0.1823 2.2761 0.1832 2.9046 0.1							.01822	8.27443	.01881	8.28801	.01941	56
7 23307 .01710 24782 .0167 .26156 .01868 .27534 .01845 .52 9 .23351 .01711 .24759 .01768 .22156 .01868 .22835 .01121 .24779 .01769 .22156 .01887 .27537 .01838 .289813 .01945 .52 17 .22403 .01714 .24898 .01771 .23603 .01889 .27580 .01887 .289813 .01947 .60 18 .23451 .01716 .24896 .01771 .236249 .01830 .27626 .01889 .28985 .01949 .47 15 .23475 .01716 .24877 .01772 .226249 .01832 .27671 .01891 .29033 .01949 .47 16 .23475 .01718 .24920 .01772 .226318 .01832 .27671 .01893 .29023 .01953 .43 17 .23546 .01720 .24967 .01772 .26318						.26087						
+ 27 8_23331 0.01711 8_24755 0.01769 8_27159 0.01868 8_27534 0.01858 8_28891 0.01946 5_1 10 23375 0.01713 2_4803 0.1170 22030 0.0182 2_27557 0.01857 2_8936 0.01946 5_1 11 2_3403 0.01714 2_4808 0.1171 2_8226 0.1828 2_27603 0.01885 2_8986 0.01918 4_9 15 2_3451 0.01716 2_4878 0.10771 2_82249 0.1830 8_27626 0.1889 2_9003 0.01949 4_7 15 2_3475 0.01771 2_4897 0.1073 2_82641 0.1831 2_27645 0.1889 2_9003 0.01949 4_8 16 2_3475 0.01718 2_82940 0.01772 2_82615 0.1832 2_27611 0.01891 2_9003 0.01949 4_8 17 2_35520 0.01728 2_8283 0.01736 2_82631 0.0183 2_27711		.23283	.01709									
9 23355 01712 2479 01769 26779 01887 27580 01886 28913 01947 50 11												
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+ 9* 2.3421 01715 8.24850 0.0172 8.26249 0.1830 9.27626 0.1880 9.28980 0.1949 48 1 3 2.24515 1.116 2.4873 0.1774 2.6295 0.1831 2.7648 0.1890 2.9025 .01931 4 1 5 2.23495 .01719 2.4890 .01776 2.6318 .01834 8.27717 .01883 2.29070 .01932 45 1 7 2.2546 .01720 2.4967 .01777 2.6364 .01834 8.27717 .01883 2.29070 .01934 43 1 8 2.2570 .01721 .24967 .01778 2.6838 .01836 .27772 .01894 .29092 .01954 43 2 1 .25540 .01721 .24961 .01738 .26434 .01838 8.27807 .01897 .29180 .01954 43 2 2 .25681 .01232 .25061 .01783 .26501 .01834 .27853 .01896												
13 224515 .01716 24873 .01717 226275 .01831 .29003 .01909 47 14 22475 .01717 .24895 .01738 .22956 .01832 .27671 .01891 .2902 .01951 4 4 8 .23523 .01719 .24944 .01776 8 .26314 .01834 2.27717 .01831 8.29000 .01933 .44 17 .23546 .01720 .24967 .01771 .26864 .01835 .27717 .01831 .29000 .01934 .43 18 .23570 .01721 .24991 .01778 .26141 .01837 .27762 .01835 .29155 .01937 .01854 .24 21 .23642 .01724 .25061 .01781 .26457 .01839 .27800 .01725 .25108 .01783 .26503 .01841 .27870 .01897 .29155 .01937 .01938 .29155 .01935 .2929 .01935												
14 23475 01717 24897 0174 26925 01832 27671 01891 29048 01952 45 4 7 23499 011718 24909 01776 26318 01833 27694 01892 29048 01952 45 16 23570 01721 24967 01777 26364 01835 227739 01894 20092 01954 43 19 23594 01722 2491 01778 26881 01836 27762 01895 29115 01935 42 21 23642 01724 25061 01781 26457 01839 27830 01893 29135 01955 42 21 23666 01724 25064 01783 26480 01840 27853 01893 29125 01953 38 28 23733 01727 25155 01785 26549 01844 278766 01900 292241 01961 36										.29003	.01950	
## 4		.23475	.01717							.29025		
17 2.3546 0.1720 2.4967 0.1777 2.6388 0.1835 2.7789 0.1894 2.9002 0.1955 4.2 19 2.3570 0.1722 2.5014 0.1779 2.6411 0.1835 2.7785 0.1896 2.9115 0.1955 4.2 4 5 8.26818 0.1723 2.5004 0.1729 2.6411 0.1839 2.7880 0.1897 2.9150 0.1955 4.2 21 2.3666 0.1724 2.5061 0.1781 2.6430 0.1840 2.7880 0.1899 2.9182 0.1938 23 2.3690 0.1725 2.5084 0.1783 2.6563 0.1844 2.7876 0.1900 2.9226 0.1938 3.9 25 2.23737 0.1726 2.52178 0.1786 2.9572 0.1844 2.7991 0.1901 8.29291 0.1961 3.6 27 8.23809 0.1730 8.25252 0.1785 2.26641 0.1844 2.2794 0.1904 2.2938												
18 23570 .0121 .24991 .0178 .26838 .01837 .27762 .01895 .29137 .01956 41 + 57 8.23618 .01723 8.25037 .01780 8.26434 .01838 8.27807 .01897 8.29159 .01956 41 21 23642 .01724 .25064 .01781 .26457 .01838 .27807 .01897 8.29159 .01953 .39 23 .23666 .01724 .25084 .01783 .26503 .01841 .27876 .01900 .29224 .01953 .38 23 .23666 .01727 .25155 .01785 .26526 .01842 .27898 .01901 .29249 .01961 .66 237373 .01727 .25155 .01785 .26572 .01844 .27941 .01902 .29271 .01962 .37 23 .23785 .01720 .252525 .01788 .26572 .01844 .27944 .01902 .29231 .019												
19 23594 .01722 .25014 .01779 .26411 .01837 .27755 .01896 .29137 .01956 4 + 5' 8.26184 .01724 .25061 .01878 8.26434 .01838 .27803 .01898 8.29182 .01957 40 22 23666 .01724 .25061 .01781 .26457 .01830 .27830 .01898 .29204 .01953 .39 23 .23660 .01726 .25131 .01784 .26503 .01841 .27876 .01900 .29226 .01900 .29216 .01901 .36 25 .23737 .01727 .25178 .01785 .26549 .01843 .27921 .01902 .29271 .01961 .36 26 .23761 .01729 .25202 .01787 .26549 .01843 .27944 .01903 .2933 .01961 .36 27 .238309 .01730 .252522 .01787 .266431 .01843												
+ 5' 8.23618 .01723 8.25037 .01780 8.26434 .01839 8.27807 .01897 8.99159 .01957 49 21 23666 .01724 .25061 .01781 .26457 .01839 .27830 .01898 .29182 .01958 39 28 23696 .01725 .25108 .01783 .26503 .01840 .27833 .01899 .29204 .01903 38 4 6' 8.23713 .01727 .25155 .01785 .26563 .01841 .27898 .01901 .29249 .01613 6 26 .23761 .01728 .25178 .01785 .26572 .01844 .27944 .01903 .29293 .01963 .34 27 23785 .01729 .25202 .01787 .26595 .01845 .27966 .01904 .29316 .0194 .33 29 .23832 .01731 .25245 .01788 .26691 .01847 .28019 .01906												
21 23,942 0.1724 25061 0.1781 29457 0.1839 2.7830 0.1898 2.9182 0.01953 39 22 2.3666 0.1724 2.5084 0.1783 2.6808 0.1840 2.7853 0.1890 2.9244 0.1953 38 2.3 2.3600 0.1725 2.5108 0.1783 2.6503 0.1841 2.7876 0.1900 2.9240 0.01961 36 2.5 2.3737 0.1727 2.5155 0.1785 2.6566 0.1842 2.72721 0.1902 2.9211 0.1902 2.9217 0.1962 35 2.6 2.3761 0.1729 2.5202 0.1787 2.65655 0.1845 2.7921 0.1903 2.9923 0.1963 34 2.9 2.3830 0.1730 8.55255 0.1788 8.26618 0.1846 8.27989 0.1903 8.29336 0.1730 0.1966 32 3.0 2.3856 0.1731 2.5325 0.1790 2.6661 0.1849												
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28' 23690 .01725 .25108 .01783 .26503 .01841 .27876 .01900 .29226 .01961 37 ± 6' 8.23713 .01726 8.25131 .01784 8.26526 .01842 8.27898 .01901 8.29249 .01961 36 26 .23761 .01728 .25178 .01786 .26572 .01844 .27941 .01903 .29293 .01963 .34 ± 7' 8.23809 .01730 8.25225 .01788 8.26618 .01846 8.27989 .01905 8.29338 .01963 .34 29 .23886 .01732 .25272 .01789 .26641 .01847 .28012 .01906 .29380 .01733 .25257 .01788 8.26618 .01847 .28034 .01907 .29383 .01965 32 30 .23880 .01732 .25272 .01789 .26644 .01847 .28034 .01907 .29383 .01965 32 31				.25084				.27853		.29204	.01959	38
25 .23737 .01728 .25155 .01785 .26649 .01843 .27921 .01902 .29271 .01963 .35 26 .23761 .01728 .25178 .01786 .26572 .01844 .27944 .01903 .29293 .01963 .34 27 .238785 .01729 .25202 .01787 .26595 .01845 .27989 .01904 .29316 .01964 .33 29 .23832 .01731 .25248 .01789 .26664 .01847 .28012 .01906 .29380 .01966 .37 30 .23856 .01733 .25295 .01790 .26687 .01849 .28057 .01908 .29407 .01968 .29 4 8 .23904 .01734 8.25319 .01791 8.26710 .01850 8.28080 .01908 8.29427 .01968 29 4 8 .23995 .01733 .25382 .01791 .26756 .01850 8.28102	23			.25108		.26503	.01841					
26 .23761 .01728 .25178 .01787 .26595 .01844 .27944 .01904 .229316 .01964 .33 + 77 8.23809 .01730 8.25225 .01788 8.26618 .01846 8.27989 .01905 8.29338 .01965 .32 29 .23852 .01731 .25248 .01789 .26664 .01847 .28012 .01906 .29300 .01967 .39 -31 .23880 .01733 .25295 .01790 .26664 .01848 .28034 .01906 .29308 .01967 .39 + 87 8.23904 .01734 8.25319 .01790 .266770 .01830 8.28080 .01909 8.29427 .01968 29 .44 .23951 .01736 .25342 .01793 .267730 .01831 .28125 .01911 .29472 .01971 .26 .55 .23975 .01737 .25389 .01794 .26779 .01853 .28125 .01911	+ 6'											
27 23785 61729 25202 .01787 26595 .01845 .27966 .01904 .29316 .01964 .33 + 77 2.3832 .01731 .25248 .01789 .26641 .01847 .28012 .01906 .29380 .01966 .31 30 .23856 .01731 .25248 .01789 .266641 .01847 .28012 .01906 .29380 .01967 .30 -51 .23880 .01733 .252572 .01789 .266641 .01848 .28057 .01908 .29495 .01968 .29 33 .23988 .01735 .25319 .01791 .266710 .01850 .288057 .01908 .29427 .01969 .28 34 .23951 .01736 .25365 .01792 .26733 .01851 .28102 .01911 .29472 .01970 .26 37 .24022 .01737 .25359 .01794 .26779 .01853 .28107 .01913 .29494												
Told												
29 23832 01731 25272 01789 26664 01847 28012 01966 29360 01967 30 30 23856 01732 25272 01789 26664 01848 28034 01907 29383 01968 29											1	
30 2.3856 .01732 2.5272 .01789 .26664 .01848 .28034 .01907 .29383 .01968 .29 + 8/ 8.23904 .01734 8.25319 .01791 8.26710 .01850 8.28080 .01908 .29407 .01968 .29 33 .23928 .01735 .25342 .01792 .26733 .01851 .28102 .01910 .29449 .01970 .27 34 .23951 .01736 .25385 .01794 .26779 .01852 .28125 .01911 .29449 .01972 .26 55 .23975 .01737 .25389 .01794 .26779 .01853 .28147 .01913 .829516 .01971 .26 37 .24022 .01738 .25412 .01797 .26825 .01855 .28193 .01914 .29539 .01973 .24 39 .24070 .01741 .25459 .01797 .26848 .01856 .28218 .01915 .295												
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34 .23951 .01736 .25365 .01793 .26756 .01852 .28125 .01911 .29472 .01971 26 + 9' 8.23999 .01738 8.25412 .01795 8.26802 .01854 8.28170 .01913 8.29516 .01973 24 37 .24022 .01739 .25455 .01796 .26825 .01855 .28193 .01914 .29539 .01974 23 38 .24046 .01740 .25489 .01798 .26871 .01857 .282315 .01915 .29539 .01974 23 59 .24070 .01741 .25482 .01798 .26871 .01857 .28235 .01915 .29539 .01974 23 41 .24118 .01742 .25552 .01801 .26940 .01856 .28260 .01915 .29628 .01977 20 41 .24118 .01743 .25552 .01801 .26940 .01860 .28306 .01919 .29628 <td>+ 8'</td> <td>8.23904</td> <td>.01734</td> <td>8.25319</td> <td></td> <td>8.26710</td> <td>.01850</td> <td></td> <td></td> <td></td> <td></td> <td></td>	+ 8'	8.23904	.01734	8.25319		8.26710	.01850					
85 .23975 .01737 .25389 .01794 .26779 .01853 .28147 .01912 .29494 .01972 .25 + 9' 8.23999 .01738 8.25412 .01795 8.26802 .01854 8.28170 .01913 8.29516 .01973 .24 37 .24022 .01739 .25435 .01796 .26825 .01855 .28193 .01914 .29539 .01974 .23 38 .24046 .01741 .25482 .01798 .26871 .01857 .28238 .01915 .29561 .01975 .22 39 .24070 .01741 .25482 .01799 8.26884 .01857 .28238 .01915 8.29660 .01977 .20 41 .24118 .01742 .25550 .01801 .26940 .01859 .28283 .01917 8.29680 .01978 .2 42 .24111 .01743 .25559 .01802 .26963 .01861 .282351 .01921 </td <td></td>												
+ 9' 8.23999 (24022) .01738 (25412) .01795 (26825) .01854 (28825) 8.28170 (28825) .01913 (29539) .01973 (24825) .24022 (24022) .01739 (25459) .01796 (26825) .01855 (28183) .01914 (29539) .01973 (24725) .24070 (24740) .01741 (25482) .01797 (26848) .01857 (28238) .01915 (29561) .01975 (29561) .01975 (22828) .01916 (29583) .01976 (29582) .01807 (29582) .01857 (28238) .01916 (29583) .01976 (29582) .01977 (29582) .01801 (29694) .01858 (28260) .01917 (29282) .01977 (29282) .01801 (29694) .01859 (28328) .01918 (29605) .01977 (29628) .01977 (29628) .01978 (29694) .01864 (28328) .01918 (29628) .01977 (29628) .01977 (29628) .01978 (28328) .01918 (29628) .01977 (29628) .01977 (29628) .01978 (28328) .01918 (29628) .01978 (29628) .01977 (29628) .01978 (29628) .01978 (29628) .01978 (29628) .01977 (29628) .01978 (29628) .01978 (29628) .01978 (29628) .01978 (29628) .01978 (29628) .01978 (29628) .01978 (29628) .01978 (29628) .01978 (29628) <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
37 2.4022 .01739 .25435 .01796 .26825 .01855 .28193 .01914 .29539 .01974 23 38 .24046 .01740 .25482 .01797 .26848 .01856 .28215 .01915 .29561 .01975 .22 4 .0409 .01741 .25482 .01798 .26871 .01857 .28238 .01916 .29583 .01976 .21 41 .24118 .01742 .25552 .01800 .26917 .01859 .28283 .01918 .29628 .01977 .20 42 .24141 .01743 .25552 .01801 .26940 .01860 .28306 .01919 .29650 .01971 .18 43 .24165 .01745 .825599 .01802 .26963 .01861 .28351 .01921 .29672 .01980 .77 45 .242189 .01745 .825599 .01803 .27692 .01861 .28351 .01921 .29761												
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39 .24070 .01741 .25482 .01798 .26871 .01857 .28238 .01916 .29583 .01976 21 + 10' 8.24094 .01742 8.25505 .01799 8.26894 .01858 8.28260 .01917 8.29605 .01977 20 41 .24118 .01743 .25529 .01800 .26917 .01860 .28306 .01919 .29650 .01978 19 42 .24141 .01744 .25557 .01802 .26963 .01861 .28328 .01919 .29650 .01978 18 43 .24165 .01744 .25575 .01802 .26963 .01861 .28328 .01920 .29672 .01980 17 45 .24212 .01746 .25622 .01804 .27009 .01862 .28373 .01922 .29716 .01982 .15 46 .24236 .01748 .25669 .01806 .27055 .01864 .28418 .01923 .29739 </td <td></td>												
41 .24118 .01743 .25529 .01800 .26917 .01859 .28283 .01918 .29628 .01978 19 42 .24141 .01743 .25552 .01801 .26940 .01860 .28306 .01919 .29650 .01979 18 43 .24165 .01744 .25575 .01802 .26963 .01861 .28328 .01920 .29672 .01980 17 45 .24212 .01746 .25529 .01803 .26986 .01861 8.28351 .01921 8.29694 .01981 16 46 .24236 .01747 .25645 .01805 .27032 .01863 .28396 .01923 .29739 .01983 14 47 .24260 .01748 .25669 .01806 .27055 .01863 .28418 .01923 .29761 .01984 13 4 12/2 8.24837 .01750 .25715 .01808 .27100 .01866 .28464 .01926 .29805 <td></td>												
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43 .24165 .01744 .25575 .01802 .26963 .01861 .28328 .01920 .29672 .01980 17 + 11' 8.24189 .01745 8.25599 .01803 8.26986 .01861 8.28351 .01921 8.29694 .01981 16 45 .24212 .01746 .25622 .01804 .27009 .01862 .28373 .01922 .29716 .01982 15 46 .24236 .01747 .25645 .01805 .27035 .01863 .28396 .01923 .29739 .01983 14 47 .24260 .01748 .256692 .01806 .27055 .01864 .28418 .01924 .29761 .01984 13 49 .24307 .01750 .25715 .01808 .27100 .01866 .28464 .01926 .29805 .01986 11 50 .24331 .01751 .25788 .01809 .27123 .01867 .28486 .01927 .29827 </td <td></td>												
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	47				.01806	.27055				.29761		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$.01807	8.27078		8.28441		8.29783		12
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		2	.01757					8.28621				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	57	.24496	.01758			.27283	.01874	.28644	.01934	.29982		3
+ 15 ′ 8.24567 .01761 8.25971 .01818 8.27352 .01877 8.28711 .01937 8.30049 .01998 0												
									-			
22 h 59 m 22 h 58 m 22 h 57 m 22 h 56 m 22 h 55 m	+ 15	8.24567	.01761	8.25971	.01818	8.27352	.01877	8.28711	.01937	8.30049	.01998	0
		22 h	59 m	22h	58 m	22.h	57 m	22 h	56 m	22.1	55m	
)									3 ~~	Mark the second	MAKE MATERIAL PARTY AND ADDRESS OF THE PARTY A

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TABLE 45.

	1 h 5 m 1	l6° 15′	1 h 6 m	l6° 30′	1 h 7 m	16° 45′	1 h 8 m	17° 0′	1 h 9 m	17° 15′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	8.30049	.01998	8.31366	.02059	8.32663	.02121	8.33940	.02185	8.35199	.02249	60
1	.30071	.01999	.31388	.02060	.32684	.02122	.33962	.02186	.35220	.02250	59
2 3	.30093 .30115	.02000 .02001	.31410 .31431	.02061	.32706 $.32727$.02124	.33983	.02187 .02188	.35241 .35261	.02251 .02252	58 57
+ 1'	8.30137	.02002	8.31453	.02063	8.32749	.02126	8.34025	.02189	8.35282	.02253	56
5	.30159	.02063	.31475	.02064	.32770	.02127	.34046	.02190	.35303	.02254	55
6 7	.30182 .30204	.02004	.31497	.02065	.32792	.02128	.34067	.02191	.35324	.02255	54
+ 2'	8.30226	.02005	$\frac{.31518}{8.31540}$	$\frac{.02066}{.02067}$	$\frac{.32813}{8.32834}$.02129	34088	$\frac{.02192}{.02193}$	$\frac{.35345}{8.35365}$	$\frac{.02257}{.02258}$	53 52
9	.30248	.02007	.31562	.02068	.32856	.02131	.34130	.02194	.35386	.02259	$\frac{5z}{51}$
10	.30270	.02008	.31584	.02069	.32877	.02132	.34152	.02195	.35407	.02260	50
11	.30292	.02009	.31605	.02070	.32899	.02133	.34173	.02196	.35428	.02261	49
$+\frac{3'}{13}$	8.30314 .30336	.02010 .02011	$8.31627 \\ .31649$.02071 .02072	8.32920 .32941	.02134 .02135	8.34194 .34215	.02198	8.35449 .35469	.02262	48 47
14	.30358	.02012	.31670	.02074	.32963	.02136	.34236	.02200	.35490	.02264	46
15	.30380	.02013	.31692	.02075	.32984	.02137	.34257	.02201	.35511	.02265	45
+ 4	8.30402	.02014	8.31714	.02076	8.33006	.02138	8.34278	.02202	8.35532	.02266	44
17 18	.30424	.02015 .02016	.31735 .31757	.02077	.33027 .33048	.02139 .02140	.34299 .34320	.02203 .02204	.35552	.02267 .02268	43
19	.30468	.02017	.31779	.02079	.33070	.02141	.34341	.02205	.35594	.02270	42
+ 5'	8.30490	.02018	8.31800	.02080	8.33091	.02142	8.34362	.02206	8.35614	.02271	40
21	.30512	.02019	.31822	.02081	.33112	.02143	.34383	.02207	.35635	.02272	39
22 23	.30534	.02020	.31844	.02082 .02083	.33134 .33155	.02145 .02146	.34404	.02208	.35656 .35677	.02273 .02274	38 37
+ 6'	8.30578	.02022	8.31887	.02084	8.33176	.02147	8.34446	.02210	8.35697	.02275	36
25	.30600	.02023	.31909	.02085	.33198	.02148	.34467	.02211	.35718	.02276	35
26	.30622	.02024	.31930	.02086	.33219	.02149	.34488	.02212	.35739	.02277	34
+ 7'	$\frac{.30644}{8.30666}$.02025	$\frac{.31952}{8.31974}$.02087	$\frac{.33240}{8.33262}$.02150	.34509	.02214	.35759	.02278	33
29	.30688	.02027	.31995	.02089	.33283	.02151	$8.34530 \\ .34551$.02215 .02216	$8.35780 \\ .35801$.02279 .02280	32
30	.30710	.02028	.32017	.02090	.33304	.02153	.34572	.02217	.35821	.02281	30
31	.30732	.02029	.32039	.02091	.33325	.02154	.34593	.02218	.35842	.02283	29
+ 8'	$8.30754 \\ .30776$.02030 .02031	8.32060 .32082	.02092 .02093	8.33347	.02155 .02156	8.34614	.02219	8.35863	.02284	28
34	.30798	.02032	.32103	.02094	.33389	.02156	.34635 .34656	.02220 .02221	.35883 .35904	.02285	27 26
35	.30820	.02033	.32125	.02095	.33411	.02158	.34677	.02222	.35925	.02287	25
+ 9'	8.30842	.02034	8.32147	.02096	8.33432	.02159	8.34698	.02223	8.35945	.02288	24
37 38	.30863	.02035 .02036	.32168 .32190	.02097 .02098	.33453	.02160 .02161	.34719 .34740	.02224	.35966	.02289	23
39	.30907	.02037	.32130	.02099	.33496	.02162	.34761	.02225 .02226	.35987 .36007	.02290 .02291	22
+ 10'	8.30929	.02038	8.32233	.02101	8.33517	.02164	8.34782	.02227	8.36028	.02292	20
41	.30951	.02039	.32254	.02102	.33538	.02165	.34803	.02229	.36048	.02293	19
42 43	.30973 .30995	.02040 .02042	.32276 $.32297$.02103 .02104	.33559 .33580	.02166 .02167	.34823 .34844	.02230 .02231	.36069 .36090	.02295 .02296	18 17
+ 11'	8.31017	.02043	8.32319	.02105	8.33602	.02168	8.34865	.02232	8.36110	.02297	16
45	.31039	.02044	.32341	.02106	.33623	.02169	.34886	.02233	.36131	.02298	15
46	.31060	.02045	.32362	.02107	.33644	.02170	.34907	.02234	.36151	.02299	14
$\frac{47}{+12'}$	$\frac{.31082}{8.31104}$.02046	$\frac{.32384}{8.32405}$.02108	$\frac{.33665}{8.33686}$.02171	34928 8.34949	.02235	$\frac{.36172}{8.36193}$.02300	13
49	.31126	.02048	.32427	.02110	.33708	.02173	.34970	.02237	.36213	.02302	$\frac{1z}{11}$
50	.31148	.02049	.32448	.02111	.33729	.02174	.34991	.02238	.36234	.02303	10
$\frac{51}{+13'}$.31170	.02050	.32470	.02112	.33750	.02175	.35011	.02239	.36254	.02304	9
+ 13	$8.31192 \mid \ .31213 \mid$.02051 .02052	$8.32491 \\ .32513$.02113 .02114	8.33771 .33792	.02176 .02177	8.35032 .35053	.02240 .02241	8.36275 .36295	.02305 .02307	8
54	.31235	.02053	.32534	.02115	.33814	.02178	.35074	.02243	.36316	.02308	6
55	.31257	.02054	.32556	.02116	.33835	.02179	.35095	.02244	.36337	.02309	5
+ 14'	8.31279	.02055	8.32577	.02117	8.33856	.02181	8.35116	.02245	8.36357	.02310	4
57 58	.31301 $.31322$.02056 .02057	.32599	.02118 .02119	.33877	.02182 .02183	.35137 .35157	.02246 .02247	.36378 .36398	.02311 .02312	3
59	.31344	.02058	.32642	.02120	.33919	.02184	.35178	.02248	.36419	.02313	1
+ 15′	8.31366	.02059	8.32663	.02121	8.33940	.02185	8.35199	.02249	8.36439	.02314	0
	22h	5.4m	22 h	5.8m	22h	50m	22h	51m	22h	50m	
	4410	/~p****	224	JU ""	4416	U/4"	ZZ n) I 110	ZZn :	JU III	

				7	ΓABLE Haversi					[Page 8	325
	1 h 10 m	17 30′	1 h 11 m	17° 45′	1 h 12 m	18° 0′	1 h 13 m	18° 15′	1 h 14m	18° 30′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s						
0	8.36439	.02314	8.37662	.02380	8.38867	.02447	8.40055	.02515	8.41226	.02584	60
1	.36460	.02315	.37682	.02381 .02382	.38886	.02448	.40074 .40094	.02516	.41246	.02585	59
2 3	.36480 $.36501$.02316	.37702 .37722	.02384	.38906 $.38926$.02451	.40094	.02517 .02518	.41265 .41284	.02586 .02587	58 57
+ 1'	8.36521	.02319	$\frac{.37722}{8.37742}$.02385	8.38946	.02452	8.40133	.02520	8.41304	.02588	56
5	.36542	.02320	.37763	.02386	.38966	.02453	.40153	.02521	.41323	.02590	55
6	.36562	.02321	.37783	.02387	.38986	.02454	.40172	.02522	.41343	.02591	54
7	.36583	.02322	.37803	.02388	39006 8.39026	.02455	$\frac{.40192}{8.40212}$.02523	$\frac{.41362}{8.41381}$.02592	53
+ 2'	8.36603 $.36624$.02323 .02324	8.37823 .37843	.02390	.39046	.02457	.40231	.02525	.41401	.02593 .02594	52 51
10	.36644	.02325	.37864	.02391	.39066	.02458	.40251	.02526	.41420	.02595	50
11	.36665	.02326	.37884	.02392	.39086	.02460	.40271	02528	.41439	.02597	49
+ 3'	8.36685	.02327	8.37904	.02394	8.39105	.02461	8.40290	.02529	8.41459	.02598	48
13 14	.36706 .36726	.02328 .02329	.37924	.02395	.39125 .39145	.02462 .02463	.40310 .40329	.02530 .02531	.41478	.02599	47 46
15	.36746	.02331	.37964	.02397	.39165	.02464	.40349	.02532	.41517	.02601	45
+ 4'	8.36767	.02332	8.37985	.02398	8.39185	.02465	8.40369	.02533	8.41536	.02602	44
17	.36787	.02333	.38005	.02399	.39205	.02466	.40388	.02534	.41555	.02603	43
18	.36808	.02334	.38025	.02400	.39225	.02467	.40408	.02536	.41575	.02605	42
$\frac{19}{+5'}$	$\frac{.36828}{8.36849}$.02335	$\frac{.38045}{8.38065}$.02401	$\frac{.39245}{8.39264}$.02469	$\frac{.40427}{8.40447}$	$\frac{.02537}{.02538}$	$\frac{.41594}{8.41613}$.02606	$\frac{41}{40}$
21	.36869	.02337	.38085	.02404	.39284	.02471	.40467	.02539	.41632	.02608	39
22	.36889	.02338	.38105	.02405	.39304	.02472	.40486	.02540	.41652	.02609	38
23	.36910	.02339	.38126	.02406	.39324	.02473	.40506	.02541	.41671	.02610	37
+ 6'	8.36930	.02340	8.38146	.02407	8.39344	.02474	8.40525	.02542	8.41690	.02612	36
25 26	.36951	.02342	.38166 .38186	.02408	.39364 .39384	.02475	.40545	.02544	.41710 $.41729$.02613	35 34
27	.36991	.02344	.38206	.02410	.39403	.02478	.40584	.02546	.41748	.02615	33
+ 7'	8.37012	.02345	8.38226	.02411	8.39423	.02479	8.40603	.02547	8.41767	.02616	32
29	.37032	.02346	.38246	.02412	.39443	.02480	.40623	.02548	.41787	.02617	31
30 31	.37053 .37073	.02347 .02348	.38266 .38286	.02414	.39463 .39482	.02481	.40642	.02549 .02550	.41806 .41825	.02619	30 29
$\frac{31}{+8'}$	8.37093	.02349	8.38306	.02416	8.39502	.02483	8.40681	.02552	8.41845	.02621	28
33	.37114	.02350	.38326	.02417	.39522	.02484	.40701	.02553	.41864	.02622	27
34	.37134	.02351	.38346	.02418	.39542	.02486	.40721	.02554	.41883	.02623	26
35	.37154	.02353	.38367	.02419	.39562	.02487	.40740	.02555	.41902	.02624	25
+ 37	8.37175 .37195	.02354	8.38387 .38407	.02420	8.39581 .39601	.02488	8.40760 .40779	.02556	8.41921 41941	.02626	24 23
38	.37215	.02356	.38427	.02423	.39621	.02490	.40799	.02559	.41941	.02628	22
39	.37236	.02357	.38447	.02424	.39641	.02491	.40818	.02560	.41979	.02629	21
+ 10'	8.37256	.02358	8.38467	.02425	8.39660	.02492	8.40837	.02561	8.41998	.02630	20
41	.37276	.02359	.38487	.02426	.39680	.02493	.40857	.02562	.42018	.02631	19
42 43	.37297 .37317	.02360 .02361	.38507 $.38527$.02427	.39700 .39720	.02495	.40876 .40896	.02563	.42037 .42056	.02633	18 17
+ 11'	8.37337	.02363	8.38547	.02429	8.39739	.02497	8.40915	.02565	$\frac{.42030}{8.42075}$.02635	16
45	.37358	.02364	.38567	.02430	.39759	.02498	.40935	.02567	.42095	.02636	15
46	.37378	.02365	.38587	.02431	.39779	.02499	.40954	.02568	.42114	.02637	14
47	.37398	.02366	.38607	.02433	.39799	.02500	.40974	.02569	.42133	.02638	13
+ 12'	8.37419 .37439	.02367	8.38627 .38647	.02434	8.39818 $.39838$.02501	8.40993 .41013	.02570 .02571	8.42152 .42171	.02639	12 11
50	.37459	.02369	.38667	.02436	.39858	.02504	.41013	.02572	.42171	.02642	10
51	.37479	.02370	.38687	.02437	.39877	.02505	.41052	.02573	.42210	.02643	9
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.02380

8.38707

.38727

.38747

.38767

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.38827

.38847

22 h 48 m

8.38867

8.38787

.02438

.02439

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.02443

.02444

.02445

.02446

.02447

8.39897

.39917

.39937

.39956

8.39976

.39996

.40015

.40035

22h 47m

8.40055

.02506

.02507

.02508

.02509

.02510

.02512

.02513

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8.41071

.41090

.41110

.41129

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.41168

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.41207

22h 46m

8.41226

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.02578

.02579

.02580

.02582

.02583

.02584

8.42229

.42248

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8.42305

.42324

.42344

.42363

22h 45m

8.42382

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.02644

.02645

.02646

.02648

.02649

.02650

.02651

.02652

.02653

	1h 15m	18° 45′	1h 16m	19° 0′	1h 17m	19° 15′	1h 18m	19° 30′	1h 19m	19° 45′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	8.42382	.02653	8.43522	.02724	8.44647	.02796	8.45757	.02868	8.46852	.02941	60
2	.42401 .42420	.02655 .02656	.43541	.02725	.44665	.02797	.45775 .45794	.02869 .02870	.46871 $.46889$.02942	59
3	.42439	.02657	.43578	.02728	.44703	.02799	.45812	.02871	.46907	.02945	58 57
+ 1'	8.42458	.02658	8.43597	.02729	8.44721	.02800	8.45830	.02873	8.46925	.02946	56
5	.42477	.02659	.43616	.02730	.44740	.02802	.45849	.02874	.46943	.02947	55
$\frac{6}{7}$.42497 $.42516$.02661	.43635	.02731	.44758 .44777	.02803	.45867 .45885	.02875 .02876	.46961	.02949	54
+ 2'	8.42535	.02663	8.43673	.02734	8.44796	.02805	8.45904	.02878	8.46998	.02951	53 52
9	.42554	.02664	.43692	.02735	.44814	.02806	.45922	.02879	.47016	.02952	51
10	.42573	.02665	.43710	.02736	.44833	.62808	.45940	.02880	.47034	.02954	50
$\frac{11}{+3'}$	$\frac{.42592}{8.42611}$.02666 .02668	.43729	.02737	.44851	$\frac{.02809}{.02810}$	$\frac{.45959}{8.45977}$.02881	$\frac{.47052}{8.47070}$.02955	49
13	.42630	.02669	8.43748 .43767	.02739	8.44870	.02811	.45995	.02884	.47088	.02957	48 47
14	.42649	.02670	.43786	.02741	.44907	.02812	.46014	.02885	.47106	.02958	46
15	.42668	.02671	.43805	.02742	.44926	.02814	.46032	.02886	.47124	.02960	45
+ 4'	8.42687 $.42706$.02672 .02673	8.43823 .43842	.02743	8.44944 .44963	.02815	$8.46050 \\ .46069$.02887	8.47142 .47160	.02961 .02962	44 43
18	.42725	.02675	.43861	.02745	.44981	.02817	.46087	.02890	.47178	.02963	42
19	.42745	.02676	.43880	.02747	.45000	.02818	.46105	.02891	.47197	.02965	41
+ 5'	8.42764	.02677	8.43899	.02748	8.45018	.02820	8.46124	.02892	8.47215	.02966	40
21 22	.42783	.02678 .02679	.43917 .43936	.02749	.45037	.02821	.46142 .46160	.02893	.47233 .47251	.02967	39 38
23	.42821	.02680	.43955	.02751	.45074	.02823	.46179	.02896	.47269	.02970	37
+ 6'	8.42840	.02682	8.43974	.02753	8.45093	.02824	8.46197	.02897	8.47287	.02971	36
25	.42859	.02683	.43992	.02754	.45111	.02826	.46215	.02898	.47305	.02972	35
26 27	.42878	.02684	.44011	.02755 .02756	.45130	.02827	.46233 $.46252$.02900	.47323	.02973	34 33
+ 7	8.42916	.02686	8.44049	.02757	8.45167	.02829	8.46270	.02902	8.47359	.02976	32
29	.42935	.02688	.44067	.02759	.45185	.02830	.46288	.02903	.47377	.02977	31
30	.42954	.02689	.44086	.02760	.45204	.02832	.46306	.02904	.47395	.02978	30
$\frac{31}{+8'}$	$\frac{.42973}{8.42992}$.02690	$\frac{.44105}{8.44124}$.02761 .02762	$\frac{.45222}{8.45241}$.02833	$\frac{.46325}{8.46343}$.02906	$\frac{.47413}{8.47431}$.02979	29 28
33	.43011	.02692	.44142	.02763	.45259	.02835	.46361	.02908	.47449	.02982	27
34	.43030	.02693	.44161	.02764	.45278	.02836	.46379	.02909	.47467	.02983	26
$\frac{35}{+9'}$.43049	.02695	.44180	.02766	.45296	.02838	.46398	.02911	.47485	.02984	25
+ 37	8.43068 .43087	.02696 .02697	8.44199 .44217	.02767	8.45315 .45333	.02839	8.46416 .46434	.02912	8.47503 .47521	.02986 .02987	24
38	.43106	.02698	.44236	.02769	.45352	.02841	.46452	.02914	.47539	.02988	22
39	.43125	.02699	.44255	.02771	.45370	.02842	.46471	.02915	.47557	.02989	21
+ 10'	.43144	.02700 .02702	8.44273 .44292	.02772	8.45388 .45407	.02844	8.46489 .46507	.02917 .02918	8.47575 .47593	.02991	20 19
42	.43181	.02703	.44311	.02774	.45425	.02846	.46525	.02919	.47611	.02993	18
43	.43200	.02704	.44330	.02775	.45444	.02847	.46544	.02920	.47629	.02994	17
+ 11'	8.43219	.02705	8.44348	.02776	8.45462	.02849	8.46562	.02922	8.47647	.02996	16
45 46	.43238 $.43257$.02706	.44367 .44386	.02778	.45481	.02850	.46580 .46598	.02923	.47665 .47683	.02997	15 14
47	.43276	.02709	.44404	.02780	.45518	.02852	.46616	.02925	.47701	.02999	13
+ 12'	8.43295	.02710	8.44423	.02781	8.45536	.02853	8.46634	.02926	8.47719	.03000	12
49 50	.43314	.02711	.44442	.02782	.45554	.02855	.46653	.02928	.47737	.03002	11
50 51	.43333	.02712	.44460 .44479	.02784	.45573 .45591	.02856	.46671	.02929	.47755	.03003	10
+ 13'	8.43371	.02715	8.44498	.02786	8.45610	.02858	8.46707	.02931	8.47791	.03005	8
53	.43390	.02716	.44516	.02787	.45628	.02859	.46725	.02933	.47809	.03007	7
54 55	.43409 .43427	.02717	.44535	.02788	.45646	.02861	.46744 $.46762$.02934	.47827	.03008	6 5
+ 14'	8.43446	.02719	$\frac{.44554}{8.44572}$.02791	8.45683	.02863	8.46780	.02936	8.47862	.03010	4
57	.43465	.02721	.44591	.02792	.45702	.02864	.46798	.02938	.47880	.03012	3
58 50	.43484	.02722	.44610	.02793	.45720	.02866	.46816	.02939	.47898	.03013	2
$\frac{59}{+15'}$	$\frac{.43503}{8.43522}$.02723	$\frac{.44628}{8.44647}$.02794	$\frac{.45738}{8.45757}$.02867	$\frac{.46834}{8.46852}$.02940	$\frac{.47916}{8.47934}$.03014	$\frac{1}{0}$
10								TECNO.			0
	22 h	44 m	22 h	43 m	22 h	42m	22 h	41 m	22 h	40m	

TABLE 45.

		202.24	1	202 474	Lakaam	900 904	I dh aam	000 47/	th o Im	21° 0′	_
	1h 20m			20° 15′		20° 30′		20° 45′			
s	Log. Hav.	Nat. Hav.		Nat. Hav.		Nat. Hav.		Nat. Hav.			8
0	8.47934 .47952	.03015	8.49002 .49020	.03090	8.50056 .50074	.03166	8.51098 .51115	.03243	8.52127 .52144	.03321	60 59
1 2	.47970	.03018	.49037	.03093	.50091	.03169	.51132	.03246	.52161	.03324	58
3	.47988	.03019	.49055	.03094	.50109	.03170	.51150	.03247	.52178	.03325	57
+ 1'	8.48006	.03620	8.49073	.03095	8.50126	.03171	8.51167	.03248	8.52195	.03326	56
5	.48024	.03022	.49090	.03097	.50144	.03173	.51184 .51201	.03250 .03251	.52212 .52229	.03328	55 54
$\frac{6}{7}$.48041	.03023 .03024	.49108 .49126	.03099	.50179	.03175	.51201 .51219	.03252	.52246	.03330	53
$\frac{1}{1+\frac{1}{2}}$	8.48077	.03025	8.49143	.03101	8.50196	.03177	8.51236	.03254	8.52263	.03331	52
9	.48095	.03027	.49161	.03102	.50214	.03178	.51253	.03255	.52280	.03333	51
10 11	.48113 .48131	.03028	.49179 $.49196$.03103	.50231 $.50248$.03179	.51270 $.51287$.03256 .03257	.52297 .52314	.03334	50 49
$\frac{11}{+3'}$	8.48149	.03030	$\frac{.43130}{8.49214}$.03104	$\frac{.50248}{8.50266}$.03182	8.51305	.03259	8.52331	.03337	48
13	.48167	.03032	.49232	.03107	.50283	.03183	.51322	.03260	.52348	.03338	47
14	.48184	.03033	.49249	.03108	.50301	.03184	.51339	.03261	.52365	.03339	46
15	.48202	.03034	.49267	.03109	.50318	.03186	$\frac{.51356}{8.51374}$.03263	$\frac{.52382}{8.52399}$.03341	45
+ 4'	8.48220 .48238	.03035	8.49284 .49302	.03111	$8.50335 \\ .50353$.03187	.51391	.03264	.52416	.03343	43
18	.48256	.03038	.49320	.03113	.50370	.03189	.51408	.03266	.52433	.03344	42
19	.48274	.03039	.49337	.03114	.50388	.03191	.51425	.93268	.52450	.03346	41
+ 5'	8.48292	.03040	8.49355	.03116	8.50405	.03192	8.51442	.03269	8.52467	.03347	40 39
21 22	.48309 .48327	.03042	.49373 .49390	.03117	.50422	.03193	.51459 .51477	.03270	.52484	.03348	38
23	.48345	.03044	.49408	.03119	.50457	.03196	.51494	.03273	.52518	.03351	37
+ 6'	8.48363	.03045	8.49425	.03121	8.50475	.03197	8.51511	.03274	8.52535	.03352	36
25	.48381	.03047	.49443	.03122	.50492	.03198	.51528	.03275	.52552	.03354	35
26 27	.48399 .48416	.03048	.49461 .49478	.03123	.50509	.03200	.51545	.03277	.52569 .52585	.03355	34
+ 7	8.48434	.03050	8.49496	.03126	8.50544	.03202	8.51580	.03279	8.52602	.03358	32
29	.48452	.03052	.49513	.03127	.50561	.03204	.51597	.03281	.52619	.03359	31
30	.48470	.03053	.49531	.03128	.50579	.03205	.51614	.03282	.52636	.03360	30 29
$\frac{31}{+8'}$	$\frac{.48488}{8.48505}$	$\frac{.03054}{.03055}$	$\frac{.49548}{8.49566}$.03130	$\frac{.50596}{8.50614}$.03206	$\frac{.51631}{8.51648}$.03283	$\frac{.52653}{8.52670}$.03361	$\frac{29}{28}$
33	.48523	.03057	.49584	.03132	.50631	.03209	.51665	.03285	.52687	.03364	27
34	.48541	.03958	.49601	.03133	.50648	.03210	.51682	.03287	.52704	.03365	26
35	.48559	.03059	.49619	.93135	.50666	.03211	.51700	.03288	.52721	.03367	25
+ 37	8.48576 .48594	.03060	8.49636 .49654	.03136	8.50683 .50700	.03212	8.51717 $.51734$.03290	8.52738 $.52755$.03368	24 23
38	.48612	.03063	.49671	.03138	.50718	.03215	.51751	.03292	.52772	.03371	22
39	.48630	.03064	.49689	.03140	.50735	.03216	.51768	.03294	.52789	.03372	21
+ 10′	8.48648	.03065	8.49706	.03141	8.50752	.03218	8.51785	.03295	8.52806	.03373	20
41 42	.48665 .48683	.03067	.49724 .49742	.03142	.50770 .50787	.03219	.51802 .51819	.03296	.52822 $.52839$.03375	19 18
43	.48701	.03069	.49759	.03145	.50804	.03221	.51836	.03299	.52856	.03377	17
+ 11'	8.48719	.03070	8.49777	.03146	8.50821	.03223	8.51854	.03300	8.52873	.03379	16
45 46	.48736	.03072	.49794	.03147	.50839 .50856	.03224	.51871	.03301	.52890	.03380	15
46 47	.48754	.03073	.49812	.03149	.50856	.03227	.51888 .51905	.03303 .03304	.52907 $.52924$.03381	14
+ 12'	8.48789	.03075	8.49847	.03151	8.50891	.03228	8.51922	.03305	8.52941	.03384	12
49	.48807	.03077	.49864	.03152	.50908	.03229	.51939	.03307	.52958	.03385	11
50 51	.48825 .48843	.03078	.49882 .49899	.03154	.50925 $.50943$.03230	.51956	.03308	.52974 $.52991$.03386	10
$\frac{-31}{+13'}$	8.48860	.03080	$\frac{.49893}{8.49917}$.03156	8.50960	.03233	$\frac{.51973}{8.51990}$.03311	8.53008	.03389	8
53	.48878	.93082	.49934	.03157	.50977	.03234	.52007	.03312	.53025	.03390	7
54	.48896	.03083	.49952	.03159	.50994	.03236	.52024	.03313	.53042	.03392	6
55	.48914	.03084	.49969	.03160	$\frac{.51012}{8.51029}$.03237	.52041	.03314	.53059	.03393	$\frac{5}{l}$
+ 14'	8.48931 .48949	.03085 .03087	8.49987 .50004	.03161	.51029	.03238	8.52 0 58 .52 0 76	.03316	8.53076 .53092	.03394	4 3
58	.48967	.03088	.50022	.03164	.51063	.03241	.52093	.03318	.53109	.03397	2
59	.48984	.03089	.50039	.03165	.51081	.03242	.52110	.03320	.53126	.03398	1
+ 15	8.49002	.03090	8.50056	.03166	8.51098	.03243	8.52127	.03321	8.53143	.03400	0
	22h	39m	22h	38m	22h	37m	22h	36m	22h	35m	
					7						

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TABLE 45.

	1h 25m	21° 15′	1h 26m	21° 30′	1h 27m	21° 45′	1h 28m	22° 0′	1h 29m	22° 15′	
s	Log. Hav.			Nat. Hav.							s
0	8.53143	.03400	8.54147	.03479	8.55139	.03560	8.56120	.03641	8.57089	.03723	60
1	.53160	.03401	.54164	.03480	.55156	.03561	.56136	.03642	.57105	.03724	59
2	.53177	.03402	.54180	.03482	55172	.03562	.56152	.03644	.57121	.03726	58
$\frac{3}{+1'}$	$\frac{.53193}{8.53210}$.03404	$\frac{.54197}{8.54214}$.03483	$\frac{.55189}{8.55205}$.03564	$\frac{.56169}{8.56185}$.03645	$\frac{.57137}{8.57153}$.03727	57 56
+ 1'	.53227	.03405	.54230	.03486	.55220	.03566	.56201	.03648	.57169	.03730	55 55
6	.53244	.03408	.54247	.03487	55238	.03568	.56217	.03649	.57185	.03731	54
7	.53261	.03409	.54263	.03488	.55254	.03569	.56233	.03650	.57201	.03733	53
+ 2'	8.53277 $.53294$.03410	$8.54280 \\ .54297$.03490 .03491	8.55271 .55287.	.03570	$8.56250 \\ .56266$.03652	8.57217 .57233	.03734	52 51
10	.53311	.03413	.54313	.03492	.55303	.03573	.56282	.03654	.57230	.03737	50
11	.53328	.03414	.54330	.03494	.55320	.03574	.56298	.03656	.57266	.03738	49
+ 3'	8.53345	.03415	8.54346	.03495	8.55336	.03576	8.56315	.03657	8.57282	.03740	48
13 14	.53361	.03417	.54363 .54380	.03496 .03498	.55353	.03577	.56331 .56347	.03659	.57298 .57314	.03741	47 46
15	.53395	.03419	.54396	.03499	.55385	.03580	.56363	.03661	.57330	.03744	45
+ 4'	8.53412	.03421	8.54413	.03500	8.55402	.03581	8.56379	.03663	8.57346	.03745	44
17	.53429	.03422	.54429	.03502	.55418	.03582	.56396	.03664	.57362	.03746	43
18 19	.53445 .53462	.03423	.54446 .54462	.03503	.55435 .55451	.03584	.56412 $.56428$.03665	.57378 .57394	.03748	42 41
$\frac{10}{+5'}$	8.53479	.03426	8.54479	.03504	8.55467	.03587	8.56444	.03668	$\frac{.57334}{8.57410}$.03751	40
21	.53496	.03427	.54496	.03507	.55484	.03588	.56460	.03669	.57426	.03752	39
22 23	.53512	.03429	.54512 .54529	.03509 .03510	.55500	.03589	.56477 $.56493$.03671	.57442 .57458	.03753	38
$\frac{z_3}{+6'}$.53529 8.53546	.03430	8.54545	.03511	$\frac{.55516}{8.55533}$.03591	8.56509	.03672	8.57474	.03755	37
25	.53563	.03433	.54562	.03513	.55549	.03593	.56525	.03675	.57490	.03757	35
26	.53580	.03434	.54578	.03514	.55566	.03595	.56541	.03676	.57506	.03759	34
27	.53596	.03435	.54595	.03515	.55582	.03596	.56557	.03678	.57522	.03760	33
+ 7'	8.53613 .53630	.03437 .03438	8.54612 54628	.03517	8.55598 .55615	.03597	8.56574 $.56590$.03679	8.57538 .57554	.03762	32 31
30	.53646	.03439	.54645	.03519	.55631	.03600	.56606	.03682	.57570	.03764	30
31	.53663	.03441	.54661	.03521	.55647	.03601	.56622	.03683	.57585	.03766	29
+ 8'	8.53680 .53697	.03442	8.54678 .54694	.03522	8.55664 .55680	.03603 .03604	8.56638 .56654	.03685 .03686	8.57601 .57617	.03767	28 27
34	.53713	.03445	.54711	.03525	.55696	.03605	.56670	.03687	.57633	.03770	26
35	.53730	.03446	.54727	.03526	.55713	.03607	.56687	.03689	.57649	.03771	25
+ 9'	8.53747	.03447	8.54744	.03527	8.55729	.03608	8.56703	.03630	8.57665	.03773	24
37 38	.53764	.03449 .03450	.54760 .54777	.03529	.55745 .55762	.03610	.56719 .56735	.03691	.57681	.03774	23
39	.53797	.03451	.54793	.03531	.55778	.03612	.56751	.03694	.57713	.03777	21
+ 10'	8.53814	.03453	8.54810	.03533	8.55794	.03614	8.56767	.03695	8.57729	.03778	20
41	.53830	.03454	.54826	.03534	.55811	.63615	.56783	.03697	.57745	.03780	19
42 43	.53847 .53864	.03455	.54843	.03535	.55827 $.55843$.03616	.56799 .56816	.03698	.57761 .57777	.03781	18 17
+ 11'	8.53880	.03448	8.54876	.03538	8.55859	.03619	8.56832	.03701	8.57793	.03784	16
45	.53897	.03459	.54892	.03539	.55876	.03620	.56848	.03702	.57809	.03785	15
46 47	.53914	.03460 .03462	.54909 .54925	.03541	.55892 .55908	.03622	.56864 .56880	.03704	.57825	.03787	14 13
+ 12'	8.53947	.03463	8.54942	.03543	8.55925	.03624	8.56896	.03706	8.57856	.03789	12
49	.53964	.03464	.54958	.03545	55941	.03626	.56912	.03708	.57872	.03791	11
50 51	.53980	.03466	.54975	.03546	.55957	.03627	56928	.03709	.57888	.03792	10
$\frac{51}{+13'}$	$\frac{.53997}{8.54014}$.03467	$\frac{.54991}{8.55008}$.03547	$\frac{.55973}{8.55990}$.03629	$\frac{.56944}{8.56960}$.03711	.57904 8.57920	.03794	$\frac{9}{8}$
53	.54030	.03470	.55024	.03550	56006	.03631	56977	.03712	.57936	.03796	7
54	.54047	.03471	.55041	.03551	.56022	.03633	.56993	.03715	57952	.03798	6
55	.45064	.03472	.55057	.03553	.56039	.03634	.57009	.03716	.57968	.03799	5
$+\frac{14'}{57}$	8.54080 .54097	.03474	8.55073 .55090	.03554 .03555	8.56055 .56071	.03635	8.57025 .57041	.03717	8.57984 .58000	.03800	4 3
58	.54114	.03476	.55106	.03557	.56087	.03638	.57057	.03720	.58015	.03803	2
59	.54130	.03478	.55123	.03558	.56104	.03639	.57073	.03722	.58031	.03805	1
+ 15'	8.54147	.03479	8.55139	.03560	8.56120	.03641	8.57089	.03723	8.58047	.03806	0
	22h	34m	22h	$g_{\mathcal{S}m}$	22h	32m	22h	31 ^m	22h	30m	
			COLUMN TOWN CONTRACTOR		-	-				-	

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					Haversin	nes.					
	1h 30m	22° 30′	1h 31m	22° 45′	1h 32m	23° 0′	1h 33m	23° 15′	1h 34m	23° 30′	
8	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
0	8.58047	.03806	8.58994	.03890	8.59931	.03975	8.60857	.04060	8.61773	.04147	60
1	.58063	.03807	.59010	.03891	.59947	.03976	.60873	.04062	61789	.04148	59
2 3	.58079 .58095	.03809	.59026 .59042	.03893	.59962 .59978	.03978	.60888 .60903	.04063 .04065	.61804 .61819	.04150 .04151	58 57
+ 1	8.58111	.03812	8.59057	.03896	8.59993	.03980	8.60919	.04066	8.61834	.04153	$\frac{37}{56}$
5	.58127	.03813	.59073	.03897	.60009	.03982	.60934	.04068	.61849	.04154	55
6	.58142	.03814	.59089	.03898	.60024	.03983	.60949	.04069	.61864	.04156	54
7	.58158	.03816	.59104	.03900	.60040	.03985	.60965	.04070	.61880	.04157	53
+ 2'	8.58174 .58190	.03817 .03819	$8.59120 \\ .59136$.03901	$8.60055 \\ .60071$.03986	8.60980 .60995	.04072	$8.61895 \\ .61910$.04159 .04160	52 51
10	.58206	.03820	.59151	.03904	.60086	.03989	.61011	.04075	.61925	.04162	50
11	.58222	.03821	.59167	.03905	.60102	.03990	.61026	.04076	.61940	.04163	49
+ 3'	8.58238	.03823	8.59183	.03907	8.60117	.03992	8.61041	.04078	8.61955	.04164	48
13 14	.58253 $.58269$.03824 .03826	.59198 .59214	.03908 .03910	.60133 .60148	.03993 .03995	.61057 $.61072$.04079 .04081	.61971 $.61986$.04166 .04167	47 46
15	.58285	.03827	.59230	.03911	.60148	.03996	.61087	.04082	.62001	.04169	45
+ 4'	8.58301	.03828	8.59245	.03912	8.60179	.03998	8.61103	.04083	8.62016	.04170	44
17	.58317	.03830	.59261	.03914	.60195	.03999	.61118	.04085	.62031	.04172	43
18 19	.58333 .58348	.03831 .03833	.59277 $.59292$.03915	.60210 .60226	.04000	.61133	.04086	.62046	04173	42
$\frac{13}{+5'}$	8.58364	.03834	8.59308	.03918	8.60241	.04002	$\frac{.61149}{8.61164}$.04088	$\frac{.62061}{8.62077}$.04175	$\frac{41}{40}$
21	.58380	.03835	.59323	.03920	.60256	.04005	.61179	.04091	.62092	.04177	39
22	.58396	.03837	.59339	.03921	.60272	.04006	.61194	.04092	.62107	.04179	38
23	.58412	.03838	.59355	.03922	.60287	.04007	.61210	.04094	.62122	.04180	37
+ 6'	8.58427 .58443	.03839 .03841	8.59370 .59386	.03924 .03925	8.60303 .60318	.04009	8.61225	.04095	8.62137	.04182	36
26	.58459	.03842	.59402	.03927	.60334	.04010 .04012	.61240 $.61256$.04096	.62152 $.62167$.04183 .04185	35 34
27	.58475	.03844	.59417	.03928	.60349	.04013	.61271	.04099	.62182	.04186	33
+ 7'	8.58491	.03845	8.59433	.03929	8.60365	.04015	8.61286	.04101	8.62197	.04188	32
29	.58506	.03846	.59448	.03931	.60380	.04016	.61301	.04102	.62213	.04189	31
30 31	.58522 .58538	.03848	.59464 .59480	.03932	.60396 .60411	.04017	.61317 $.61332$.04104 .04105	.62228 .62243	.04191	30 29
+ 8'	8.58554	.03851	8.59495	.03935	8.60426	.04020	8.61347	.04106	8.62258	.04194	28
33	.58570	.03852	.59511	.03936	.60442	.04022	.61362	.04108	.62273	.04195	27
34 35	.58585 $.58601$.03853 .03855	.59527	.03938	.60457	.04023	.61378	.04109	.62288	.04196	26
$\frac{33}{+}$	8.58617	.03856	.59542 8.59558	.03939	$\frac{.60473}{8.60488}$.04025	$\frac{.61393}{8.61408}$.04111	$\frac{.62303}{8.62318}$.04198	25
37	.58633	.03858	.59573	.03942	.60504	.04027	.61423	.04114	.62333	.04199 .04201	24 23
38	.58648	.03859	.59589	.03944	.60519	.04029	.61439	.04115	.62348	.04202	22
39	.58664	.03860	.59604	.03945	.60534	.04030	.61454	.04117	.62363	.04204	21
+ 10'	8.58680 .58696	.03862 .03863	8.59620 .59636	.03946	8.60550 .60565	.04032	8.61469	.04118	8.62379	.04205	20
42	.58711	.03865	.59651	.03949	.60581	.04035	.61484 .61500	.04119	.62394 .62409	.04207 .04208	19 18
43	.58727	.03866	.59667	.03951	.60596	.04036	.61515	.04122	.62424	.04210	17
+ 11/	8.58743	.03867	8.59682	.03952	8.60611	.04038	8.61530	.04124	8.62439	.04211	16
45 46	.58759	.03869 .03870	.59698 .59714	.03953	.60627 .60642	.04039 .04040	.61545	.04125	.62454	.04212	15
47	.58790	.03872	.59729	.03956	.60658	.04042	.61561 $.61576$.04127 .04128	.62469 .62484	.04214	14 13
+ 12'	8.58806	.03873	8.59745		8.60673		8.61591		8.62499	.04217	
49	.58822	.03875	.59760	.03959	.60688	.04045	.61606	.04131	.62514	.04218	11
50 51	.58837 .58853	.03876	.59776	.03961	.60704	.04046	.61621	.04133	.62529	.04220	10
+ 13'	8.58869	.03877	$\frac{.59791}{8.59807}$.03962	$\frac{.60719}{8.60734}$.04048	$\frac{.61637}{8.61652}$.04134	.62544	.04221	$\frac{9}{2}$
53	.58885	.03880	.59822	.03965	.60750	.04049	.61667	.04135 .04137	8.62559 $.62574$.04223 .04224	8 7
54	.58900	.03882	.59838	.03966	.60765	.04052	.61682	.04138	.62589	.04226	G
55	.58916	.03883	.59853	.03968	.60781	.04053	.61697	.04140	.62604	.04227	5
+ 14' 57	8.58932 .58947	.63884	5.59869 $.59885$.03969	$8.60796 \\ .60811$.04055	8.61713	.04141	8.62619	.04229	4
5 8	.58963	.03887	.59900	.03972	.60827	.04056 .04058	.61728 .61743	.04143	.62634 $.62649$.04230	3 2
59	.58979	.03889	.59916	.03973	.60842	.04059	.61758	.04146	.62664	.04233	1
+ 15′	8.58994	.03890	8.59931	.03975	8.60857	.04060	8.61773	.04147	8.62680	.04234	0
	22h	29m	22h	28m	22 h	27m	a 22h	26m	22h	25m	
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	1h 35m	23° 45′	1h 36m	24° 0′	1h 37m	24° 15′	1h 38m	24° 30′	1h 20m	24° 45′	ī
1						-					
8	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	8.62680	.04234	8.63576	.04323	8.64463	.04412	8.65340	.04502	8.66208	.04593	60
2	.62695 .62710	.04236 .04237	.63591 .63606	.04324 .04326	.64477 $.64492$.04413	.65355	.04503	.66223	.04594	59
3	.62725	.04239	.63620	.04327	.64507	.04415	.65369 .65384	.04505	.66237 $.66251$.04596	58 57
+ 1'	8.62740	.04240	8.63635	.04329	8.64521	.04418	8.65398	.04508	8.66266	.04599	56
5	.62755	.04242	.63650	.04330	.64536	.04419	.65413	.04509	.66280	.04600	55
6 7	.62770 $.62785$.04243	.63665	.64332	.64551	.04421	.65427	.04511	.66295	.04602	54
+ 2'	8.62800	.04245	$\frac{.63680}{8.63695}$	04333 04335	$\frac{.64565}{8.64580}$.04422	$\frac{.65442}{8.65456}$.04512	$\frac{.66309}{8.66323}$.04604	53 52
9 ~	.62815	.04248	.63709	.04336	.64595	.04425	.65471	.04516	.66338	.04607	51
10	.62830	.04249	.63724	.04338	.64609	.04427	.65485	.04517	.66352	.04608	50
$\frac{11}{+3'}$	$\frac{.62845}{8.62860}$.04251	$\frac{.63739}{8.63754}$.04339	.64624	.04428	.65500	.04519	.66366	.04610	49
13	.62875	.04253	.63769	.04342	8.64639 $.64653$.04430	8.65514 $.65529$.04520 .04522	8.66381 $.66395$.04611	48 47
14	.62890	.04255	.63784	.04343	.64668	.04433	.65543	.04523	.66409	.04614	46
15	.62904	.04256	.63798	.04345	.64683	.04434	.65558	.04525	.66424	.04616	45
+ 4'	$8.62919 \\ .62934$.04258 .04259	8.63813 .63828	.04346 .04348	$8.64697 \\ .64712$.04436	8.65572 .65587	.04526	8.66438	.04617	44
18	.62934 $.62949$.04261	.63843	.04349	.64712 $.64727$.04437	.65601	.04528	.66453 $.66467$.04619	43 42
19	.62964	.04262	.63858	.04351	.64741	.04440	.65616	.04531	.66481	.04622	41
+ 5'	8.62979	.04264	8.63872	.04352	8.64756	.04442	8.65630	.04532	8.66496	.04623	40
21 22	.62994 .63009	.04265	.63887 .63902	.04354 .04355	.64771 $.64785$.04443	.65645	.04534	.66510 $.66524$.04625	39
23	.63024	.04268	.63917	.04357	.64800	.04446	.65674	.04537	.66539	.04628	38 37
+ 6'	8.63039	.04270	8.63932	.04358	8.64815	.04448	8.65688	.04538	8.66553	.04629	36
25	.63054	.04271	.63946	.04360	.64829	.04449	.65703	.04540	.66567	.04631	35
26 27	.63069 .63084	.04273 .04274	.63961 .63976	.04361 .04363	.64844	.04451	.65717 $.65732$.04541	.66582 $.66596$.04633	34 33
+ 7	8.63099	.04276	8.63991	.04364	8.64873	.04454	8.65746	.04544	8.66610	.04636	32
29	.63114	.04277	.64006	.04366	.64888	.04455	.65761	.04546	.66625	.04637	31
30 31	.63129 .63144	.04278	.64020	04367	.64902	.04457	.65775	.04547	.66639	.04639	30
+ 8'	8.63159	04280 04281	.64035 8.64050	.04369	$\frac{.64917}{8.64932}$.04458	$\frac{.65790}{8.65804}$.04549	$\frac{.66653}{8.66668}$.04640	29 28
33	.63174	.04283	.64065	.04372	.64946	.04461	.65819	.04552	.66682	.04643	27
34	.63189	.04284	.64079	.04373	.64961	.04463	.65833	.04553	.66696	.04645	26
$\frac{35}{+9'}$	8.63218	$\frac{.04286}{.04287}$	$\frac{.64094}{8.64109}$	$\frac{.04375}{.04376}$	$\frac{.64976}{8.64990}$.04464	.65848	.04555	.66710	.04646	25
37	.63233	.04289	.64124	.04378	.65005	.04466	8.65862 .65876	.04556 .04558	8.66725 .66739	.04648 .04649	24 23
38	.63248	.04290	.64139	.04379	.65019	.04469	.65891	.04559	.66753	.04651	22
39	.63263	.04292	.64153	.04381	.65034	.04470	.65905	.04561	.66768	.04652	21
$+\frac{10^{\prime}}{41}$	$8.63278 \ .63293$.04293 .04295	$8.64168 \\ .64183$.04382	8.65049 .65063	.04472	$8.65920 \\ .65934$.04562 .04564	8.66782	.04654	20 19
42	.63308	.04296	.64198	.04385	.65078	.04475	.65949	.04565	.66811	.04657	18
43	.63323	.04298	.64212	.04387	.65092	.04476	.65963	.04567	.66825	.04659	1,7
+ 11' 45	8.63338 .63353	.04299	8.64227 .64242	.04388 .04390	$8.65107 \\ .65122$.04478	8.65978	.04569	8.66839	.04660	16
46	.63368	.04302	.64257	.04391	.65136	.04479	.65992	.04570 .04572	.66853	.04662	15 14
47	.63382	.04304	.64271	.04393	.65151	.04482	.66021	.04573	.66882	.04665	13
+ 12'	8.63397	.04305	8.64286	.04394	8.65165	.04484	8.66035	.04575	8.66896	.04666	12
49 50	.63412 .63427	.04306 .04308	.64301 .64315	,04395 .04397	.65180 $.65194$.04485	.66050 $.66064$.04576 .04578	.66911 $.66925$.04668 .04669	11 10
51	.63442	.04309	.64330	.04398	.65209	.04488	.66079	.04579	.66939	.04671	9
+ 13′	8.63457	.04311	8.64345	.04400	8.65224	.04490	8.66093	.04581	8.66953	.04672	8
53 5 4	.63472	.04312	.64360	.04401	.65238	.04491	.66107	.04582	.66968	.04674	7
55	.63487 .635 0 2	.04314 .04315	.64374 .64389	.04403 .04404	.65253 $.65267$.04493	.66122 $.66136$.04584 .04585	.66982 .66996	.04675 .04677	6 5
+ 14'	8.63516	.01317	8.64404	.04405	8.65282	.04496	8.66151	.04587	8.67010	.04678	4
57	.63531	.04318	.64418	.04407	.65296	.04497	.66165	.04588	.67025	.04680	3
58 59	.63546 $.63561$.04320 .04321	.64433	.04409 .04410	.65311 $.65325$.04499 .04500	.66179 .66194	.04590 .04591	.67039 .67053	.04682 .04683	2
+ 15'	8.63576	.04323	8.64463	.04412	8.65340	.04500	8.66208	.04593	8.67067	.04685	$\frac{1}{0}$
	22h	24111	22h	z3m	22h	22m	22h	21m	22h	Z()m	

	1h 40m	25° 0′	1h 41m	25° 15′	1h 42m	25° 30′	1h 43m	25° 45′	1h 44m	26° 0′	
B	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S						
0	8.67067	.04685	8.67918	.04777	8.68760	.04871	8.69593	.04965	8.70418	.05060	60
2	.67082 .67096	.04686 .04688	.67932 .67946	.04779 .04780	.68773 .68787	.04872	.69607	.04967 .04968	.70431 .70445	.05062 .05063	59 58
3	.67110	.04689	.67960	.04782	.68801	.04875	.69620 .69634	.04970	.70459	.05065	57
+ 1'	8.67124	.04691	8.67974	.04783	8.68815	.04877	8.69648	.04971	$\frac{1.70472}{8.70472}$.05067	56
. 5	.67139	.04692	.67988	.04785	.68829	.04879	.69662	.04973	.70486	.05068	55
$\frac{6}{7}$.67153	.04694	.68002	.04787	.68843	.04880	.69676	.04975	.70500	.05070	54
+ 2'	$\frac{.67167}{8.67181}$.04695	$\frac{.68016}{8.68030}$.04788	$\frac{.68857}{8.68871}$.04882	$\frac{.69690}{8.69703}$.04976	$\frac{.70513}{8.70527}$.05071	53 52
7 9 ~	.67196	.04698	.68045	.04791	.68885	.04885	.69717	.04978 .04979	.70541	.05073	$\frac{5z}{51}$
10	.67210	.04709	.68059	.04793	.68899	.04886	.69731	.04981	.70554	.05076	50
11	.67224	.04702	.68073	.04794	.68913	.04888	.69745	.04982	.70568	.05078	49
+ 3'	8.67238	.04703	8.68087	.04796	8.68927	.04890	8.69758	.04984	8.70582	.05079	48
13 14	.67252 .67267	.04705 .04706	.68101	.04797 .04799	.68941 $.68955$.04891	.69772 .69786	.04986 .04987	.70595 .70609	.05081 .05083	47 46
15	.67281	.04708	.68129	.04801	.68969	.04894	.69800	.04989	.70623	.05084	45
+ 4'	8.67295	.04709	8.68143	.04802	8.68983	.04896	8.69814	.04990	8.70636	.05086	44
17	.67309	.04711	.68157	.04804	.68996	.04897	.69827	.04992	.70650	.05087	43
18 19	.67323	.04712	.68171 $.68185$.04805	.69010	.04899	.69841	.04994	.70664	.05089	42
$\frac{19}{+5'}$	$\frac{.67338}{8.67352}$.04714	8.68199	.04807	.69024 8.69038	.04901	$\frac{.69855}{8.69869}$.04995	$\frac{.70677}{8.70691}$.05091	$\frac{41}{40}$
21	.67366	.04717	.68213	.04810	.69052	.04904	.69882	.04998	.70704	.05094	39
22	.67380	.04718	.68227	.04811	.69066	.04905	.69896	.05000	.70718	.05095	38
23	.67394	.04720	.68241	.04813	.69080	.04907	.69910	.05001	.70732	.05097	37
+ 6'	8.67409 .67423	.04722 .04723	8.68256	.04815	8.69094	.04908	8.69924	.05003	8.70745	.05099	36
25 26	.67437	.04725	.68270 .68284	.04816 .04818	.69108 $.69122$.04910 .04912	.69937 $.69951$.05005 .05006	.70759 .70773	.05100 .05102	35
27	.67451	.04726	.68298	.04819	.69136	.04913	.69965	.05008	.70786	.05104	33
+ 7'	8.67465	.04728	8.68312	.04821	8.69149	.04915	8.69979	.05009	8.70800	.05105	32
29	.67480	.04729	.68326	.04822	.69163	.04916	.69992	.05011	.70813	.05107	31
30 31	.67494 .67508	.04731 .04732	.68340 $.68354$.04824 .04825	.69177 $.69191$.04918 .04919	.70006 .70020	.05013	.70827	.05108	30
+ 8'	8.67522	.04734	8.68368	.04827	8.69205	.04921	8.70034	.05014	$\frac{.70841}{8.70854}$.05110	$\frac{29}{28}$
33	.67536	.04735	.68382	.04829	.69219	.04923	.70047	.05017	.70868	.05113	27
34	.67550	.04737	.68396	.04830	.69233	.04924	.70061	.05019	.70881	.05115	26
$\frac{35}{+9'}$.67565	.04739	.68410	.04832	.69247	.04926	.70075	.05021	.70895	.05116	25
+ 9'	8.67579 .67593	.04740 .04742	8.68424 .68438	.04833 .04835	8.69260 .69274	.04927	8.70089 .70102	.05022 .05024	8.70909 .70922	.05118 .05119	24 23
38	.67607	.04743	.68452	.04836	.69288	.04930	.70116	.05025	.70936	.05121	22
3 9	.67621	.04745	.68466	.04838	.69302	.04932	.70130	.05027	.70949	.05123	21
+ 10'	8.67635	.04746	8.68480	.04839	8.69316	.04934	8.70144	.05028	8.70963	.05124	20
41 42	.67649 .67664	.04748 .04749	.68494	.04841 .04843	.69330 .69344	.04935	.70157 .70171	.05030	.70977	.05126	19
43	.67678	.04751	.68522	.04844	.69358	.04938	.70171	.05032	.70990 .71004	.05127	18 17
+ 11'	8.67692	.04752	8.68536	.04846	8.69371	.04940	8.70198	.05035	8.71017	.65131	16
45	.67706	.04754	.68550	.04847	.69385	.04941	.70212	.05036	.71031	.05132	15
46 47	.67720 .67734	.04756 .04757	.68564 .68578	.04849 .04850	.69399 .69413	.04943 .04945	.70226	.05038	.71045	.05134	14
+ 12'	8.67748	.04759	8.68592	.04852	8.69427	.04946	$\frac{.70240}{8.70253}$.05040	$\frac{.71058}{8.71072}$.05135	13
49	.67763	.04760	.68606	.04854	.69441	.04948	.70267	.05041	.71072	.05137 .05139	$\frac{12}{11}$
50	.67777	.04762	.68620	.04855	.69454	.04949	.70281	.05044	.71099	.05140	10
51	.67791	.04763	.68634	.04857	.69468	.04951	.70294	.05046	.71112	.05142	9
+ 13' 53	8.67805 $.67819$.04765 .04766	8.68648 .68662	.04858 .04860	8.69482 .69496	.04952 .04954	8.70308	.05048 .05049	8.71126	.05144	8
54	.67833	.04768	.68676	.04861	.69510	.04954	.70322 .70336	.05049	.71140 .71153	.05145	6
55	.67847	.04769	.68690	.04863	.69524	.04957	.70349	.05052	.71167	.05148	5
+ 14	8.67861	.04771	8.68704	.04864	8.69537	.04959	8.70363	.05054	8.71180	.05150	4
57 58	.67875	.04773	.68718 .68732	.04866 .04868	.69551	.04960	.70377	.05055	.71194	.05152	3
59	.67904	.04776	.68746	.04869	.69565 .69579	.04962 .04964	.70390 .70404	.05057 .05059	.71207 .71221	.05153 .05155	2
+ 15'	8.67918	.04777	8.68760	.04871	8.69593	.04965	8.70418	.05060	8.71234	.05156	$\frac{1}{0}$
	22h	19m	22h	18m	22h	17m	22h	16m	22h	15m	
-					~~.		~~.		22.0	10	

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TABLE 45.

VI						·	100.					_
		1h 45m	26° 15′	1h 46m	26° 30′	1h 47m	26° 45′	1h 48m	27° 0′	1h 49m	27° 15′	
	s	Log. Hav.	Nat. Hav.	Log. Hav	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
	0	8.71234	.05156	8.72043	.05253	8.72844	.05351	8.73637	.05450	8.74423	.05549	60
	1	.71248	.05158	.72057 .72070	.05255 .05257	.72857	.05353 .05354	.73650 .73663	.05451	.74436 .74449	.05551 .05552	59 58
	2 3	.71261 .71275	.05160 .05161	.72070	.05258	.72871 .72884	.05356	.73677	.05455	.74462	.05554	57
	+ 1'	8.71289	.05163	8.72097	.05260	8.72897	.05358	8.73690	.05456	8.74475	.05556	56
	5	.71302	.05164	.72110	.05261	.72910	.05359	.73703	.05458	.74488	.05557	55
	6	.71316	.05166	.72124	.05263	.72924	.05361	.73716	.05460	.74501	.05559	54
	$\frac{\gamma}{+2'}$	$\frac{.71329}{8.71343}$.05168	$\frac{.72137}{8.72150}$.05265 .05266	$\frac{.72937}{8.72950}$	$\frac{.05363}{.05364}$	$\frac{.73729}{8.73742}$.05461	$\frac{.74514}{8.74527}$.05561	53 52
	7 9	.71356	.05171	.72164	.05268	.72963	.05366	.73755	.05464	.74540	.05564	51
	10	.71370	.05172	.72177	.05270	.72977	.05367	.73769	.05466	.74553	.05566	50
	11	.71383	.05174	.72191	.05271	.72990	.05369	.73782	.05468	.74566	.05567	49
	$+ \frac{3'}{13}$	8.71397 .71410	.05176 .05177	8.72204 .72217	.05273 .05274	8.73003 .73016	.05371 .05372	8.73795 .73808	.05470 .05471	8.74579 $.74592$.05569 .05571	48 47
	14	.71424	.05179	.72231	.05276	.73030	.05374	.73821	.05473	.74605	.05572	46
	15	.71437	.05181	.72244	.05278	.73043	.05376	.73834	.05474	.74618	.05574	45
	+ 4'	8.71451	.05182	8.72257	.05279	8.73056	.05377	8.73847	.05476	8.74631	.05576	44
	17 18	.71464 .71478	.05184 .05185	.72271 .72284	.05281 .05283	.73069 .73083	.05379 .05381	.73860 .73874	.05478 .05479	.74644 $.74657$.05577	43 42
	19	.71491	.05187	.72298	.05284	.73096	.05382	.73887	.05481	.74670	.05581	41
	+ 5'	8.71505	.05189	8.72311	.05286	8.73109	.05384	8.73900	.05483	8.74683	.05582	40
	21	.71518	.05190	.72324	.05287	.73122	.05385 .05387	.73913 .73926	.05484	.74696 .74709	.05584	39 38
	22 23	.71532 .71545	.05192 .05193	.72338 .72351	.05289 .05291	.73136 .73149	.05389	.73926	.05488	.74709	.05587	37
	+ 6'	8.71559	.05195	8.72364	.05292	8.73162	.05390	8.73952	.05489	8.74735	.05589	36
	25	.71572	.05197	.72378	.05294	.73175	.05392	.73965	.05491	.74748	.05591	35
	26 27	.71586 .71599	.05198 .05200	.72391 .72404	.05296 .05297	.73189 .73202	.05394 .05395	.73978 .73 9 92	.05493 .05494	.74761 .74774	.05593	34 33
	+ 7	8.71613	.05201	8.72418	.05299	$\frac{.73202}{8.73215}$.05397	8.74005	.05496	8.74787	.05596	32
	29	.71626	.05203	.72431	.05300	.73228	.05399	.74018	.05498	.74800	.05597	31
	30	.71640	.05205	.72445	.05302	.73241	.05400	.74031	.05499	.74813	.05599	30 29
	$\frac{31}{+8'}$	$\frac{.71653}{8.71667}$.05206 .05208	$\frac{.72458}{8.72471}$.05304	$\frac{.73255}{8.73268}$.05402 .05404	$\frac{.74044}{8.74057}$.05501	.74826 8.74839	.05603	28
	33	.71680	.05210	.72485	.05307	.73281	.05405	.74070	.05504	.74852	.05604	27
	34	.71694	.05211	.724 9 8	.05309	.73294	.05407	.74083	.05506	.74864	.05606	26
	$\frac{35}{+}$.71707	.05213	$\frac{.72511}{8.72525}$.05310 .05312	$\frac{.73308}{8.73321}$.05408	$\frac{.74096}{8.74109}$.05508	$\frac{.74877}{8.74890}$.05607	25 24
	+ 9 ′	8.71721 .71734	.05214 .05216	.72538	.05312	.73334	.05412	.74122	.05511	.74903	.05611	23
	38	.71748	.05218	.72551	.05315	.73347	.05413	.74135	.05513	.74916	.05613	22
	39	.71761	.05219	.72565	.05317	.73360	.05415	.74149	.05514	.74929	.05614	21
	+ 10'	8.71774 .71788	.05221 .05222	8.72578 $.72591$.05318 .05320	8.73374 .73387	.05417 .05418	8.74162 .74175	.05516 .05518	8.74942 .74955	.05616 .05618	20 19
	41 42	.71801	.05224	.72605	.05322	.73400	.05420	.74188	.05519	.74968	.05619	18
	43	.71815	.05226	.72618	.05323	.73413	.05422	.74201	.05521	.74981	.05621	17
	+ 11'	8.71828	.05227	8.72631	.05325	8.73426	.05423 .05425	8.74214 .74227	.05523 .05524	8.74994 .75007	.05623 .05624	16 15
	45 46	.71842 .71855	.05229 .05231	.72644 $.72658$.05326 .05328	.73440 .73453	.05427	.74240	.05526	.75020	.05626	14
	47	.71869	.05232	.72671	.05330	.73466	.05428	.74253	.05528	.75033	.05628	13
		8.71882		8.72684		8.73479	.05430	8.74266	.05529	8.75046	.05629	12
	49 50	.71895 .71909	.05235 .05237	.72698	.05333	.734 9 2 .73505	.05431 .05433	.74279 .74292	.05531	.75059 .75072	.05631 .05633	11 10
	51	.71922	.05239	.72724	.05336	.73519	.05435	.74305	.05534	.75084	.05634	9
	+ 13'	8.71936	.05240	8.72738	.05338	8.73532	.05436	8.74318	.05536	8.75097	.05636	8
	53	.71949	.05242	.72751	.05340 .05341	.73545 .73558	.05438 .05440	.74331 .74344	.05537 .05539	.75110 .75123	.05638 .05639	6
	54 55	.71963 .71976	.05244	.72764	.05343	.73571	.05441	.74357	.05541	.75125	.05641	5
	+_14′	8.71989	.05247	8.72791	.05345	8.73584	.05443	8.74371	.05542	8.75149	.05643	4 3
11	57	.72003	.05248	.72804	.05346	.73598	.05445	.74384	.05544	.75162	.05644	3
,	58 59	.72016 .72030	.05250 .05252	.72817 .72831	.05348	.73611 .73624	.05446	.74397 .74410	.05546	.75175 .75188	.05646 .05648	2
	$\frac{-35}{+15'}$	8.72043	.05253	8.72844	.05351	8.73637	.05450	8.74423	.05549	8.75201	.05649	0
						22h				22h	10m	
		22h	14"	22h	1311	zzn	12"	22h	11"	zzn	10"	

Haversines.

0 S.75201 .05649 S.75972 .05751 S.76735 .05853 S.77492 .05955 S.78241 .06059 f 1 75214 .05651 .75994 .05752 .76748 .05854 .77504 .05857 .78248 .06061 5 2 75227 .05653 .75997 .05754 .7678 .05854 .77504 .05857 .78289 .06663 5 3 75239 .05655 .76010 .05754 .7678 .05858 .77529 .05961 .78278 .06063 5 5 75252 .05658 .76023 .05757 S.76786 .05858 .77529 .05961 .78278 .06064 5 6 75278 .05660 .70048 .05761 .76811 .05853 .77524 .03962 S.78291 .06066 5 6 75278 .05660 .70048 .05761 .76811 .05863 .77567 .03968 .78316 .06067 5 7 75291 .05661 .76061 .05768 .76824 .05853 .77559 .03968 .78318 .06071 5 9 7.7517 .05665 .76061 .05768 .76834 .05868 .77592 .05969 S.78311 .05663 .76086 .05766 .76849 .05868 .77591 .05669 .78316 .06071 5 10 75330 .05668 .76099 .05768 .76852 .05571 .77617 .05937 .87856 .06071 5 11 75343 .05668 .76099 .05768 .76852 .05571 .77657 .05968 .78316 .06073 5 11 75343 .05668 .76099 .05718 .57687 .05571 .77650 .05973 .78383 .06073 5 11 75348 .05668 .76099 .05718 .57687 .05571 .77669 .05978 .78854 .05671 .7617 .05937 .87855 .05767 .76814 .05768 .77697 .05767 .05769 .05768 .76824 .05771 .77697 .05769 .78788 .06071 .7617 .05761 .7617 .05761 .76874 .76874 .77697 .05768 .76874 .05774 .76891 .05769 .76874 .78787 .05761 .76874 .78787 .05761 .76874 .78787 .05761 .76874 .78787 .78789 .05778 .77697 .05769 .05769 .78789 .05778 .77697 .05769 .05769 .78789 .78789 .05778 .77697 .05769 .05769 .78789 .78789 .05778 .78789 .05778 .77697 .05769 .05769 .78818 .06082 .7769 .77697 .05769 .78789 .78789 .78789 .05778 .78789 .05878 .77697 .05769 .78789 .78789 .78789 .78789 .05778 .78789 .05882 .77799 .05889 .78849 .06082 .77799 .05769 .78789 .78789 .05789 .78789 .05789 .78789 .05889 .78789 .05889 .78789 .05889 .78789 .05889 .78789 .06889 .78840 .06882 .78989 .78840 .06882 .78989 .78840 .06882 .78989 .78840 .06882 .78989 .78840 .06882 .78989 .78840 .06882 .78989 .78840 .06882 .78989 .78840 .06882 .78989 .78840 .06889 .78840 .06882 .78989 .78840 .06889 .78840 .06882 .78989 .78840 .06889 .78840 .06882 .78840 .06882 .78840 .06882 .78840 .0688		1h 50m	270 30'	1h 51m	27° 45′	1h 52m	28° 0′	1h 53m	28° 15′	1h 54m	28° 30′	
7	s	Log. Hav.	Nat. Hav.	s								
2												60
± 7.5239 .05656 8.76023 5.6757 8.6758 .77529 .6365 8.76023 .63575 8.76786 .63558 .77529 .60064 6 ± 1.75786 .36568 .76035 .63579 .76788 .35861 .77524 .03944 .78303 .06008 ± 2.75782 .03660 .76061 .55761 .76811 .35861 .77567 .03966 .78316 .0601 .65762 .76824 .05885 .77529 .03663 .6061 .65762 .76824 .05885 .77557 .03666 .6061 .65762 .76824 .05886 .75759 .05898 .78321 .06073 .60073												59 58
+ 1	ž 3											57
5 7,5265 0,5568 3,7690 0,67561 76811 0,5861 7,75291 0,6661 760061 0,6761 76811 0,5863 3,7567 0,5966 7,8361 0,6000 6 7 7,5291 0,5661 7,60061 0,5762 7,6824 0,5865 7,7579 0,5968 7,8314 0,6003 8 9 7,5317 0,5665 7,6869 0,5868 0,7604 0,5971 7,7833 0,6667 7,7939 0,5666 7,6699 7,6814 0,5768 7,6852 0,5862 0,5760 7,7682 0,5767 7,76852 0,5767 7,76852 0,5767 7,76852 0,5733 0,6607 0,6007 7,7533 0,6668 7,6112 0,5769 7,6852 0,5873 0,7762 0,5973 7,8363 0,6607 7,7533 0,6607 7,7533 0,6607 0,6007 7,7534 0,5742 0,6858 7,6604 0,5973 7,8363 0,6603 0,6003 4,444 7,7534 0,6603 0,6603							.05859	8.77542	.05962	8.78291		56
7 75991 .03661 .76061 .05762 .76824 .08585 .77579 .05968 .78328 .06073 5 9 8,75394 .03665 76086 .05766 .76849 .03686 .77694 .05961 .78331 .06065 .76089 .05766 .76849 .03688 .77614 .05713 .78353 .06077 .76171 .05733 .78365 .06007 .76 .76886 .76694 .05861 .77617 .05973 .78365 .06007 .76 .76885 .68681 .77617 .05933 .78368 .06073 .76171 .05868 .76614 .05811 .77638 .06007 .76 .05881 .78429 .06009 .78421 .05738 .78403 .06009 .78421 .05738 .78420 .06073 .76110 .05718 .76825 .05878 .77780 .05938 .78413 .06083 .77420 .05678 .76110 .05728 .76825 .05878 .77780 .05881 .78440	5											55
+ 97												54 53
9 75317 .05665 76086 .05769 .76892 .0350 .77601 .69913 .78355 .60075 £1 11 75330 .05668 76112 .05769 .76874 .05811 .77630 .05978 .78365 .60072 £1 4 3 8.75355 .05670 8.76125 .05111 8.76887 .05873 8.77630 .06088 4 13 .75388 .05673 .76150 .05771 .76925 .05373 .77605 .05996 .78413 .06083 4 14 75381 .05673 .76160 .05778 .76892 .05878 .77605 .05898 .77422 .06083 4 17 .75420 .05678 .76189 .05793 .70890 .05892 .77760 .05893 .77760 .05895 .77692 .05893 .77760 .05894 .77842 .05688 .76214 .05783 .76992 .05889 .77780 .05892 .75452 .06096												52
17						.76849	.05868			.78353		51
+ 9' 8.75355												50
1.2			-									49 48
14												47
+ 4' 8.75407	14	.75381	.05673	.76150	.05774	.76912	.05877	.77667				46
17												45
18												44 43
19												42
\$\frac{2}{2}\$ \$\frac{7.5471}{7.5471}\$ \$\frac{0.5685}{0.686}\$ \$\frac{7.6240}{7.6252}\$ \$\frac{0.5786}{0.5790}\$ \$\frac{7.7701}{7.013}\$ \$\frac{0.5888}{0.5990}\$ \$\frac{7.77767}{7.05905}\$ \$\frac{0.5993}{0.5993}\$ \$\frac{7.8502}{0.6099}\$ \$\frac{0.5993}{0.60993}\$ \$\frac{7.5497}{0.6099}\$ \$\frac{0.5688}{0.5790}\$ \$\frac{0.5790}{0.5990}\$ \$\frac{7.77767}{7.7780}\$ \$\frac{0.5993}{0.5993}\$ \$\frac{7.5827}{0.6099}\$ \$\frac{0.5993}{0.5991}\$ \$\frac{7.7026}{0.5993}\$ \$\frac{0.5994}{0.5995}\$ \$\frac{7.5839}{0.6092}\$ \$\frac{0.5793}{0.5993}\$ \$\frac{0.5795}{0.5993}\$ \$\frac{7.5856}{0.5993}\$ \$\frac{0.5691}{0.6103}\$ \$\frac{0.5795}{0.5793}\$ \$\frac{7.7064}{0.5895}\$ \$\frac{0.77805}{0.5899}\$ \$\frac{0.5895}{0.8599}\$ \$\frac{7.8551}{0.6000}\$ \$\frac{0.5986}{0.6104}\$ \$\frac{0.5986}{0.6104}\$ \$\frac{0.5986}{0.5993}\$ \$\frac{7.7061}{0.5899}\$ \$\frac{0.5899}{0.78506}\$ \$\frac{0.6004}{0.6106}\$ \$\frac{0.5986}{0.6103}\$ \$\frac{0.5996}{0.5993}\$ \$\frac{0.5996}{0.5994}\$ \$\frac{0.77815}{0.6000}\$ \$\frac{0.6007}{0.8599}\$ \$\frac{0.5600}{0.6002}\$ \$\frac{0.5896}{0.6103}\$ \$\frac{0.5996}{0.6002}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6002}\$ \$\frac{0.7856}{0.6007}\$ \$\frac{0.6110}{0.6100}\$ \$\frac{0.5996}{0.6103}\$ \$\frac{0.5996}{0.6002}\$ \$\frac{0.6011}{0.5996}\$ \$\frac{0.6011}{0.6002}\$ \$\frac{0.5996}{0.6002}\$ \$\frac{0.5996}{0.6002					.05783		.05885			.78477		41
22 75484 0.5686 76252 0.5789 7.7706 0.5892 7.7780 0.5993 7.8514 0.6099 3 ± 6' 8.75510 0.5689 7.6265 0.5791 8.77039 0.5892 7.7780 0.5995 7.8527 0.6099 3 25 7.5523 0.5690 7.6291 0.5793 7.7064 0.5895 7.7805 0.5999 7.8553 0.6103 3 26 7.5536 0.5695 7.6306 0.5796 7.7064 0.5899 7.7810 0.6002 7.8564 0.6104 3 29 7.5574 0.5695 7.6341 0.5580 7.7102 0.5901 8.77842 0.6004 7.8569 0.6110 3 30 7.5587 0.5700 7.6354 0.5500 7.7102 0.5904 7.7867 0.6004 7.8661 0.6111 3 31 7.5600 0.5702 7.6350 0.5505 8.71139 0.5906 7.7860 0.6004 7.												40
\$\begin{array}{c c c c c c c c c c c c c c c c c c c												39 38
+ 6' 8.75510 0.5690 8.76278 0.5791 8.77039 0.5894 8.77792 0.5997 8.78539 0.6101 3 26 7.75523 0.5693 7.76291 0.5793 7.77054 0.5395 7.7805 0.5999 7.8551 0.6103 3 27 7.75548 0.5693 7.6316 0.5796 7.7706 0.5889 7.7830 0.6002 7.8556 0.6106 3 27 7.5548 0.5695 7.6316 0.5796 7.7706 0.5889 7.7830 0.6002 7.8557 0.6106 3 30 7.5587 0.5700 7.6354 0.5800 7.7102 0.5902 7.7855 0.6005 7.8601 0.6111 3 30 7.7587 0.5700 7.6354 0.5802 7.7114 0.5904 7.7867 0.6007 7.8613 0.6111 3 31 7.5600 0.5702 7.6354 0.5803 7.7127 0.5906 7.7880 0.6007 7.8626 0.6113 3 3 7.5626 0.5703 8.76380 0.5807 7.7139 0.5907 8.77892 0.6011 8.78633 0.6113 3 3 7.5626 0.5705 7.6392 0.5808 7.7155 0.5911 7.7917 0.6014 7.8663 0.6113 3 3 7.5661 0.5708 7.6418 0.5510 7.7177 0.5913 7.7990 0.6016 7.8675 0.6112 3 3 7.5664 0.5712 0.5443 0.5810 7.7717 0.5913 7.7990 0.6016 7.8700 0.6124 3 3 7.5670 0.5712 7.6443 0.5810 7.7125 0.5918 7.7995 0.6018 8.78688 0.6112 3 3 7.5703 0.5713 7.6459 0.5817 7.7228 0.5918 7.7990 0.6023 7.8725 0.6129 2 4 7.5728 0.5718 7.6469 0.5817 7.7228 0.5918 7.7990 0.6023 7.8725 0.6123 4 7.5725 0.5718 7.6469 0.5824 7.7255 0.5925 7.8017 0.6023 7.8749 0.6130 4 4 7.5728 0.5712 7.6583 0.5822 7.7255 0.5925 7.8017 0.6023 7.8749 0.6130 4 4 7.57805 0.5722 7.6558 0.5828 7.7368 0.5925 7.8017 0.6028 7.8749 0.6130 4 4 7.5865 0.5727 7.6558 0.5828 7.7368 0.5930 7.8050 0.6028 7.8749 0.6130 4 4 7.5865 0.5727 7.6558 0.5828 7.7368 0.5930 7.8050 0.6028 7.8749 0.6130 4 4 7.5865 0.5727 7.6558 0.5828 7.7368 0.5933 7.8005 0.6028 7.8749 0.6133 4 4 7.5866 0.5737 0.5864 0.5836 0.5836 0.7330 0.5930												37
26 75536 .05693 .76316 .05796 .77064 .05897 .77817 .06000 .78576 .06104 3 27 .75548 .05695 .76316 .05796 .77076 .05899 .77830 .06002 .78576 .06108 3 29 .75574 .05698 .76341 .05800 .77102 .05902 .77855 .06005 .78611 .06110 3 30 .75587 .05700 .76354 .05800 .77114 .05904 .77867 .06007 .78613 .06111 3 31 .75600 .05702 .76367 .05803 .77112 .05904 .77882 .06011 8.78626 .06111 3 33 .75626 .05708 .76485 .05808 .77165 .05911 .77905 .06012 .78663 .06118 2 34 .75661 .05708 .76431 .05812 8.77165 .05911 .77970 .06018 8.78688 <	+ 6'					8.77039	.05894		.05997	8.78539	.06101	36
27												35
+ 7' 8.75561 .05697 8.76329 .05798 8.77089 .05901 8.77842 .06004 8.78589 .06108 3 29 .75574 .05698 .76341 .05800 .77112 .05902 .77855 .06005 .78601 .06110 3 30 .75600 .05702 .76367 .05803 .77117 .05906 .77880 .06009 .78626 .06113 2 + 8' 8.75613 .05703 8.76380 .05805 8.77139 .05909 .77905 .06011 8.76638 .06115 2 34 .75638 .05707 .76405 .05808 .77165 .05911 .77917 .06014 .78663 .06118 2 35 .75661 .05710 8.76431 .05812 8.77190 .05914 8.77942 .06018 8.78688 .06128 2 37 .75677 .05713 .76469 .05813 .77215 .05914 8.77942 .06018 8.786												34 33
29				-						2		32
31									.06005			31
+ 8' 8.75613 .05703 8.76380 .05805 8.77139 .05907 8.77892 .06011 8.78638 .06115 2.33 .75626 .05705 .76392 .05807 .77162 .05909 .77905 .06014 .78663 .06117 2.34 .75638 .05707 .76405 .05808 .77165 .05911 .77917 .06014 .78663 .06118 2.35 .75651 .05708 .76418 .05810 .77176 .05911 .77917 .06014 .78675 .06120 2.37 .75664 .05710 8.76431 .05812 8.77190 .05914 8.77942 .06018 8.78688 .06122 2.37 .75677 .05713 .76469 .05813 .77215 .05918 .77967 .06019 .78700 .06124 2.33 .75703 .05717 8.76481 .05819 8.77240 .05921 8.77992 .06021 8.78737 .06129 2.42 .75754 .05722 .76519 .05824 .77228 .05925 .78017 <th></th> <th>30</th>												30
38 .75626 .05705 .76392 .05807 .77152 .05909 .77905 .06012 .78651 .06117 2 34 .75638 .05708 .76405 .05808 .77165 .05911 .77917 .06014 .78663 .06118 2 57 .75664 .05710 8.76431 .05812 8.77190 .05914 8.77942 .06018 8.78688 .06122 2 37 .75677 .05712 .76443 .05813 .77202 .05916 .77955 .06019 .78700 .06124 2 38 .75690 .05713 .76456 .05815 .77215 .05918 .77970 .06021 .78700 .06124 2 41 .75793 .05715 .76494 .05819 8.77240 .05921 8.77992 .06024 8.78737 .06129 2 41 .75754 .05720 .76507 .05822 .77265 .05925 .78017 .06028 .78762												29
34 .75638 .05707 .76405 .05808 .77165 .05911 .77917 .06014 .78663 .06118 2 + 9' 8.75664 .05708 .76431 .05810 .77170 .05913 .77942 .06018 8.78688 .06120 2 37 .75677 .05712 .76431 .05813 .77902 .05914 8.77942 .06018 8.78688 .06129 2 38 .75690 .05713 .76456 .05815 .77215 .05918 .77967 .06021 .78712 .06124 2 39 .75703 .05715 .76469 .05817 .77228 .05918 .77967 .06021 .78712 .06125 2 41 .75728 .05718 .76481 .05819 8.77240 .05921 8.77872 .06023 .78725 .06127 2 42 .75741 .05720 .76507 .05822 .77265 .05925 .78017 .06028 .78762												27
+ 9' 8.75664 .05710 8.76431 .05812 8.77190 .05914 8.77942 .06018 8.78688 .06122 2 37 .75677 .05712 .76443 .05813 .77202 .05916 .77955 .06019 .78700 .06124 2 38 .75690 .05715 .76469 .05817 .77228 .05919 .77980 .06023 .78725 .06125 2 + 10' 8.75715 .05717 8.76481 .05819 8.77240 .05921 8.77992 .06024 8.78737 .06129 2 41 .75728 .05718 .76494 .05820 .77278 .05925 .78005 .06026 .78749 .06130 1 42 .75741 .05720 .76507 .05824 .77278 .05926 .78019 .06028 .78762 .06132 1 4 11' 8.758767 .05722 .76535 .05827 .77303 .05930 .78042 .06031 8.7	34	.75638	.05707	.76405	.05808	.77165	.05911	.77917	.06014	.78663	.06118	26
37 .75677 .05712 .76443 .05813 .77202 .05916 .77955 .06019 .78700 .06124 2 38 .75690 .05713 .76456 .05815 .77215 .05918 .77967 .06021 .78712 .06125 2 39 .75703 .05717 8.76469 .05819 8.77240 .05911 8.77992 .06024 8.78737 .06127 2 41 .75728 .05718 .76494 .05820 .77253 .05923 .78005 .06024 8.78737 .06130 1 42 .75741 .05720 .76507 .05822 .77278 .05926 .78005 .06028 .78742 .06130 1 45 .75767 .05724 8.76532 .05825 8.77291 .05928 8.78042 .06031 8.78787 .06134 1 45 .75779 .05725 .76554 .05827 .77303 .05931 .78067 .06033 .78799						****						25
38 .75690 .05713 .76456 .05815 .77215 .05918 .77967 .06021 .78712 .06125 2 39 .75703 .05715 .76469 .05817 .77228 .05919 .77980 .06021 .78725 .06127 2 + 10' 8.75715 .05717 8.76481 .05819 8.77240 .05921 8.77990 .06024 8.78737 .06129 2 41 .75728 .05718 .76494 .05820 .77255 .05923 .78005 .06026 .78749 .06130 1 42 .75741 .05720 .76519 .05824 .77278 .05926 .78029 .06030 .78774 .06132 1 45 .75779 .05725 .76543 .05827 .77303 .05930 .78054 .06031 .878787 .06136 1 45 .75799 .05725 .76548 .05829 .77316 .05931 .78067 .06031 .788781												24
39												22
41 .75728 .05718 .76494 .05820 .77253 .05923 .78005 .06026 .78749 .06130 1 42 .75741 .05720 .76507 .05822 .77265 .05925 .78017 .06028 .78762 .06130 1 43 .75754 .05722 .76519 .05824 .77278 .05926 .78029 .06030 .78774 .06134 1 45 .75779 .05725 .76545 .05827 .77303 .05930 .78054 .06033 .78799 .06137 .06136 1 46 .75792 .05727 .76558 .05829 .77316 .05931 .78067 .06035 .78811 .06139 1 47 .75805 .05729 .76570 .05830 .77328 .05933 .78079 .06037 .78824 .06141 1 49 .75831 .05732 .76596 .05834 .77353 .05936 .78104 .06040 <td< th=""><th>39</th><th></th><th></th><th></th><th></th><th></th><th></th><th>.77980</th><th></th><th>.78725</th><th></th><th>21</th></td<>	39							.77980		.78725		21
42 .75741 .05720 .76507 .05822 .77265 .05925 .78017 .06028 .78762 .06132 1 43 .75754 .05722 .76519 .05824 .77278 .05926 .78029 .06030 .78774 .06134 1 + 11' 8.75767 .05724 8.76532 .05825 8.77291 .05928 8.78042 .06031 8.78787 .06136 1 45 .75779 .05725 .76558 .05829 .77316 .05931 .78067 .06033 .78799 .06137 1 46 .75792 .05727 .76558 .05829 .77316 .05931 .78067 .06035 .78811 .06139 1 47 .75805 .05730 .876583 .05832 .877341 .05935 8.78092 .06037 .78824 .06141 1 + 12' 8.75818 .05730 .876583 .05832 .87341 .05935 .878092 .06038 8.7883												20
48												19 18
+ 11′ 8.75767 .05724 8.76532 .05825 8.77291 .05928 8.78042 .06031 8.78787 .06136 1 45 .75779 .05725 .76545 .05827 .77303 .05930 .78054 .06031 .878787 .06136 1 46 .75792 .05727 .76558 .05829 .77316 .05931 .78067 .06035 .78799 .06137 .1 47 .75805 .05729 .76570 .05830 .77328 .05933 .78079 .06037 .78824 .06141 1 + 12′ 8.75818 .05730 8.76583 .05832 8.77341 .05935 8.78092 .06038 8.78836 .06143 1 50 .75844 .05734 .76668 .05836 .77369 .05936 .78117 .06042 .78848 .06144 1 51 .75869 .05737 .766621 .05837 .77379 .05940 .78129 .06044 .788												17
46 .75792 .05727 .76558 .05829 .77316 .05931 .78067 .06035 .78811 .06139 1 47 .75805 .05729 .76570 .05830 .77328 .05933 .78079 .06035 .78811 .06139 1 + 12' 8.75818 .05730 8.76583 .05832 8.77341 .05935 8.78092 .06038 8.78836 .06143 1 49 .75831 .05734 .76608 .05836 .77366 .05936 .78117 .06040 .78848 .06144 1 51 .75856 .05735 .76621 .05837 .77379 .05940 .78129 .06044 .78873 .06148 + 13' 8.75869 .05737 8.76634 .05839 8.77391 .05942 8.78142 .06045 8.78855 .06150 53 .75895 .05740 .76659 .05842 .77416 .05945 .78167 .06049 .78910 .06153												16
47 .75805 .05729 .76570 .05830 .77328 .05933 .78079 .06037 .78824 .06141 1 + 12' 8.75818 .05730 8.76583 .05832 8.77341 .05935 8.78092 .06038 8.78836 .06143 1 49 .75831 .05732 .76596 .05834 .77353 .05936 .78104 .06040 .78848 .06144 1 50 .75844 .05734 .76608 .05836 .77366 .05938 .78117 .06042 .78861 .06146 1 51 .75856 .05735 .76621 .05837 .77379 .05940 .78129 .06044 .78873 .06148 + 13' 8.75869 .05737 8.76634 .05839 8.77391 .05942 8.78142 .06045 8.78885 .06150 53 .75882 .05739 .76646 .05841 .77404 .05943 .78167 .06047 .78898 .06151												15
+ 12' 8.75818 .05730 8.76583 .05832 8.77341 .05935 8.78092 .06038 8.78836 .06143 1 49 .75831 .05732 .76596 .05834 .77353 .05936 .78104 .06040 .78848 .06144 1 50 .75856 .05735 .76621 .05837 .77379 .05940 .78129 .06042 .78861 .06148 1 51 .75869 .05737 8.76634 .05839 8.77391 .05942 8.78142 .06045 8.78885 .06148 1 53 .75882 .05739 .76646 .05841 .77404 .05943 .78164 .06045 8.78898 .06151 54 .75895 .05740 .76672 .05842 .77416 .05945 .78167 .06049 .78910 .06153 55 .75908 .05742 .76672 .05846 .8.77441 .05949 8.78191 .06050 .78922 .06157												14 13
49 .75831 .05732 .76596 .05834 .77353 .05936 .78104 .06040 .78848 .06144 1 50 .75846 .05735 .76602 .05836 .77366 .05938 .78117 .06042 .78861 .06146 f 51 .75856 .05735 .76621 .05837 .77379 .05940 .78129 .06044 .78873 .06148 + 18' 8.75869 .05737 8.76634 .05839 8.77391 .05942 8.78142 .06045 8.78885 .06150 53 .75882 .05739 .76664 .05841 .77404 .05943 .78154 .06047 .78898 .06151 54 .75895 .05740 .76679 .05842 .77416 .05945 .78179 .06050 .78920 .06153 55 .75908 .05742 .76672 .05846 8.77441 .05949 8.78191 .06052 8.78935 .06157 57 .		-	.05730	8.76583	.05832			8.78092				12
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	49	.75831	.05732		.05834	.77353	.05936	.78104	.06040	.78848	.06144	11
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												10
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$												9
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	53			.76646				.78154				7
+ 14' 8.75920 .05744 8.76684 .05846 8.77441 .05949 8.78191 .06052 8.78935 .06157 57 .75933 .05745 .76697 .05847 .77454 .05950 .78204 .06054 .78947 .06158 58 .75946 .05747 .76710 .05849 .77466 .05952 .78216 .06056 .78959 .06160 59 .75959 .05749 .76722 .05851 .77479 .05954 .78229 .06057 .78972 .06162							.05945		.06049	.78910	.06153	6
57 .75933 .05745 .76697 .05847 .77454 .05950 .78204 .06054 .78947 .06158 58 .75946 .05747 .76710 .05849 .77466 .05952 .78216 .06056 .78959 .06160 59 .75959 .05749 .76722 .05851 .77479 .05954 .78229 .06057 .78972 .06162												5
58 .75946 .05747 .76710 .05849 .77466 .05952 .78216 .06056 .78959 .06160 59 .75959 .05749 .76722 .05851 .77479 .05954 .78229 .06057 .78972 .06162												4 3
	58	.75946	.05747	.76710	.05849	.77466	.05952	.78216	.06056	.78959	.06160	2
1 do 15 18 75977 1675118 76775 1685718 77409 1685710 70941 1695710 70004 164641										Y		1
5.78984 .00104 .00104 .00000 0.77432 .00000 0.78411.00000000000000000000000000000000000	+ 15	8.75972	.05751	8.76735	.05853	8.77492	.05955	8.78241	.06059	8.78984	.06164	0
22h 9m 22h 8m 22h 7m 22h 6m 22h 5m		22h	9m	22h	gm	22 h	7m	22h	6m	22 h	5m ·	

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	1h 55m	28° 45′	1h 56m	29° 0′	1h 57m	29° 15′	1h 58m	29° 30′	1h 59m	29° 45′	
s		Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	8.78984	.06164	8.79720	.06269	8.80449	.06375	8.81172	.66482	8.81889	.06590	60
1	.78996	.06165	.79732	.06271	.80462	.06377	.81184	.06484	.81901	.06592	59
2	.79009	.06167	.79744	.06273	.80474	.06379	.81196	.06486	.81913	.06594	58
+ 1'	.79021 8.79033	.06169	$\frac{.79757}{8.79769}$.06274	$\frac{.80486}{8.80498}$.06381	$\frac{.81208}{8.81220}$.06488	$\frac{.81925}{8.81937}$.06595	$\frac{57}{56}$
+ 1' 5	.79046	.06172	.79781	.06278	.80510	.06384	.81232	.06491	.81948	.06599	55
6	.79058	.06174	.79793	.06280	.80522	.06386	.81244	.06493	.81960	.06601	54
7	.79070	.06176	.79805	.06281	.80534	.06388	.81256	.06495	.81972	.06603	53
+ 2'	8.79082	.06178	8.79818	.06283	8.80546	.06389	8.81268	.06497	8.81984	.06605	52
9	.79095	.06179	.79830	.06285	.80558	.06391	.81280	.06498	.81996	.06606	51
10 11	.79107 .79119	.06181	.79842 .79854	.06287 .06288	.80570 .80582	.06393 .06395	.81292	.06500	.82008 .82020	.06608	50 49
$\frac{11}{+3'}$	8.79132	.06185	8.79866	.06290	8.80595	.06397	8.81316	.06504	8.82032	.06612	48
13	.79144	.06186	.79879	.06292	.80607	.06398	.81328	.06505	.82043	.06614	47
14	.79156	.06188	.79891	.06294	.80619	.06400	.81340	.06507	.82055	.06615	46
15	.79169	.06190	.79903	.06295	80631	_'.06402	.81352	.06509	.82067	.06617	45
+ 4'	8.79181	.06192	8.79915	.06297	8.80643	.06404	8.81364	.06511	8.82079	.06619	44
17	.79193	.06193	.79927 .79940	.06299 .06301	.80655 .80667	.06405	.81376 .81388	.06513	.82091 .82103	.06621	43
18 19	.79205 .79218	.06195 .06197	.79940	.06303	.80679	.06409	.81388	.06514	.82103	.06624	42
$\frac{13}{+5'}$	8.79230	.06199	8.79964	.06304	8.80691	06411	8.81412	.06518	8.82126	.06626	40
21	.79242	.06200	.79976	.06306	.80703	.06413	.81424	.06520	.82138	.06628	39
22	.79255	.06202	.79988	.06308	.80715	.06414	.81436	.06522	.82150	.06630	38
23	.79267	.06204	.80000	.06310	.80727	.06416	.81448	.06523	.82162	.06632	37
+ 6'	8.79279	.06206	8.80013	.06311	8.80739	.06418	8.81460	.06525	8.82174	.06633	36
25 26	.79291 .79304	.06207	.80025 .80037	.06313 .06315	.80751 $.80764$.06420	.81472	.06527	.82186 .82198	.06635	35
27	.79316	.06211	.80049	.06317	.80776	.06423	.81496	.06531	.82209	.06639	33
+ 7'	8.79328	.06213	8.80061	.06318	8.80788	.06425	8.81508	.06532	8.82221	.06641	32
29	.79341	.06214	.80073	.06320	.80800	.06427	.81520	.06534	.82233	.06642	31
30	.79353	.06216	.80086	.06322	.80812	.06429	.81531	.06536	.82245.	.06644	30
31	.79365	.06218	.80098	.06324	.80824	.06430	.81543	.06538	.82257	.06646	29
+ 8'	8.79377	.06220 .06221	8.80110 .80122	.06326	8.80836	.06432	8.81555 .81567	.06540	8.82269 .82280	.06648	28
33 34	.79390 .79402	.06223	.80122	.06329	.80360	.06435	.81579	.06543	.82292	.06650	27 26
35	.79414	.06225	.80146	.06331.	.80872	.06438	.81591	.06545	.82304	.06653	25
+ 9'	8.79426	.06227	8.80158	.06333	8.80884	.06439	8.81603	.06547	8.82316	.06655	24
37	.79439	.06229	.80171	.06334	.80896	.06441	.81615	.06549	.82328	.06657	23
38	.79451	.06230	.80183	.06336	.80908	.06143	.81627	.06550	.82340	.06659	22
39	.79463	.06232	.80195 8.80207	.06338	.80920	.06145	.81639	.06552	.82351	.06661	21
+ 10'	8.79475 $.79488$.06234 .06236	.80219	.06340	8.80932 .80944	.06446	8.81651 .81663	.06554	8.82363 .82375	.06662	20 19
42	.79500	.06237	.80231	.06343	.80956	.06450	.81675	.06558	.82387	.06666	18
43	.79512	.06239	.80243	.06345	.80968	.06452	.81687	.06559	.82399	.06668	17
+ 11'	8.79524	.06241	8.80256	.06347	8.80980	.06454	8.81699	.06561	8.82410	.06670	16
45	.79537	.06243	.80268	.06349	.80992	.06455	.81710	.06563	.82422	.06671	15
46	.79549 .79561	.06244	.80280 .80292	.06350 .06352	.81004	.06457	.81722 .81734	.06565	.82434 .82446	.06673	14 13
$\frac{47}{+12'}$	8.79573	.06248	8.80304	.06354	8.81028	.06461	8.81746	.06568	8.82458	.06677	$\frac{13}{12}$
49	.79586	.06250	.80316	.06356	.81040	.06463	.81758	.06570	.82470	.06679	11
50	.79598	.06251	.80328	.06357	.81052	.06464	.81770	.06572	.82481	.06681	10
51	.79610	.06253	.80340	.06359	.81064	.06466	.81782	.06574	.82493	.06682	9
+ 13	8.79622	.06255	8.80353	.06361	8.81076	.06468	8.81794	.06576	8.82505	.06684	8
53 54	.79634 .79647	.06257 .06258	.80365 .80377	.06363 .06365	.81088 .81100	.06470	.81806 .81818	.06577	.82517 .82529	.06686 .06688	7
54 55	.79659	.06260	.80389	.06366	.81112	.06473	.81830	.06581	.82540	.06690	6 5
+ 14'	8.79671	.06262	8.80401	.06368	8.81124	.06475	8.81841	.06583	8.82552	.06691	4
57	.79683	.06264	.80413	.06370	.81136	.06477	.81853	.06585	.82564	.06693	3
58	.79696	.06265	.80425	.06372	.81148	.06479	.81865	.06586	.82576	.06695	2
59	.79708	.06267	.80437	.06373	.81160	.06480	.81877	.06588	.82588	.06697	1
+ 15'	8.79720	.06269	8.80449	.06375	8.81172	.06482	8.81889	.06590	8.82599	.06699	0
	22h	4m	22h	3m	22h	2m	22 h	1m	22h	0m	
	~~	-	~~		~~	~	~~		~~		

	2h 0m	30° 0′	2h 1m	30° 15′	2h 2m	30° 30′	2h 3m	30° 45′	2h 4m	31° 0′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	8.82599	.06699	8.83303	.06808	8.84002	.06919	8.84694	.07030	8.85380	.07142	60
1	.82611	.06701	.83315	.06810 .06812	.84013 .84025	.06920 .06922	.84705 .84717	.07032	.85391 .85403	.07144	59 58
2 3	.82623 .82635	.06702	.83327 .83338	.06812	.84036	.06924	.84728	.07035	.85414	.07147	57
+ 1/.	8.82646	.06706	8.83350	.06816	8.84048	.06926	8.84740	.07037	8.85425	.07149	56
5	.82658	.06708	.83362	.06817	.84059	.06928	.84751	.07039	.85437	.07151	55
6 7	.82670	.06710	.83374 .83385	.06819 .06821	.84071 .84083	.06930 .06931	.84762 .84774	.07041	.85448 .85459	.07153	54 53
+ 2'	$\frac{.82682}{8.82694}$.06711	8.83397	.06823	8.84094	.06933	8.84785	.07045	8.85471	.07157	$\frac{53}{52}$
T 9"	.82705	.06715	.83409	.06825	.84106	.06935	.84797	.07046	.85482	.07158	51
10	.82717	.06717	.83420	.06826	.84117	.06937	.84808	.07048	.85494	.07160	50
11	.82729	.06719	.83432	.06828	.84129	.06939	.84820	.07050	.85505	.07162	49
+ 3'	$8.82741 \\ .82752$.06721	8.83444 .83455	.06830 .06832	$8.84140 \\ .84152$.06941	8.84831 .84843	.07052 .07054	8.85516 .85528	.07164	48 47
14	.82764	.06724	.83467	.06834	.84164	.06944	.84854	.07056	.85539	.07168	46
15	.82776	.06726	.83479	.06836	.84175	.06946	.84866	.07058	.85550	.07170	45
+ 4	8.82788	.06728	8.83490	.06838	8.84187	.06948	8.84877	.07059	8.85562	.07172	44
17 18	.82799 .82811	.06730	.83502 .83513	.06839 .06841	.84198 .84210	.06959	.84889 .84900	.07061	.85573 .85585	.07173	43 42
19	.82823	.06733	.83525	.06843	.84221	.06954	.84912	.07065	.85596	.07177	41
+ 5'	8.82835	.06735	8.83537	.06845	8.84233	.06956	8.84923	.07067	8.85607	.07179	40
21	.82846	.06737	.83548	.06847	.84244	.06957	.84934	.07069	.85619	.07181	39
22 23	.82858 .82870	.06739	.83560 .83572	.06849	.84 2 56 .84268	.06959 .06961	.84946 .84957	.07071	.85630 .85641	.07183	38 37
+ 6'	8.82882	.06742	8.83583	.06852	8.84279	.06963	8.84969	.07074	8.85653	.07187	36
25	.82893	.06744	.83595	.06854	.84291	.06965	.84980	.07076	.85664	.07189	35
26	.82905	.06746	.83607	.06856	.84302	.06967	.84992	.07078	.85675	.07190	34
27	.82917	.06748	.83618	.06858	.84314	.06968	.85003	.07080	.85687	.07192	33
+ 29	8.82929 .82940	.06750 .06752	8.83630 .83642	.06860 .06861	8.84325 .84337	.06970 .06972	8.85015 .85026	.07082	8.85698 .85709	.07194	32 31
30	.82952	.06753	.83653	.06863	.84348	.06974	.85020	.07086	.85721	.07198	30
31	.82964	.06755	.83665	.06865	.84360	.06976	.85049	.07087	.85732	.07200	29
+ 8'	8.82976	.06757	8.83676	.06867	8.84371	.06978	8.85060	.07089	8.85743	.07202	28
33 24	.82987 .82999	.06759	.83688 .83700	.06869	.84383 .84394	.06980	.85072 .85083	.07091	.85755 .85766	.07204	27 26
35	.83011	.06763	.83711	.06872	.84406	.06983	.85095	.07095	.85777	.07207	25
+ 9'	8.83023	.06764	8.83723	.06874	8.84417	.06985	8.85106	.07097	8.85789	.07209	24
37	.83034	.06766	.83735	.06876	.84429	.06987	.85117	.07099	.85800	.07211	23
38 39	.83046 .83058	.06788	.83746 .83758	.06878	.84441 .84452	.06989	.85129 .85140	.07100	.85811 .85823	.07213	22 21
+ 10'	8.83069	.06772	8.83769	.06882	8.84464	.06993	8.85152	.07104	8.85834	.07217	20
41	.83081	.06773	.83781	.06884	.84475	.06994	.85163	.07106	.85845	.07219	19
42	.83093	.06775	.83793	.06885	.84487	.06996	.85175	.07108	.85857	.07220	18
+ 11'	$\frac{.83105}{8.83116}$.06777	.83804 8.83816	.06887	.84498 8.84510	.06998	$\frac{.85186}{8.85197}$.07110	$\frac{.85868}{8.85879}$.07222	17
45	.83128	.06781	.83828	.06891	.84521	.07002	.85209	.07114	.85891	.07224	16 15
46	.83140	.06783	.83839	.06893	.84533	.07004	.85220	.07115	.85902	.07228	14
47	.83151	.06784	.83851	.06895	.84544	.07006	.85232	.07117	.85913	.07230	13
+ 12'	8.83163 .83175	.06786 .06788	8.83862 .83874	.06896 .06898	8.84556 .84567	.07007	8.85243	.07119	8.85925	.07232	12
49 50	.83187	.06790	.83886	.06900	.84579	.07011	.85254 .85266	.07121	.85936 .85947	.07234	11 10
51	.83198	.06792	.83897	.06902	.84590	.07013	.85277	.07125	.85959	.07237	9
+ 13'	8.83210	.06794	8.83909	.06904	8.84602	.07015	8.85289	.07127	8.85970	.07239	8
53 54	.83222 .83233	.06795	.83920 .83932	.06906	.84613 .84625	.07017	.85300 .85311	.07129	.85981 .85992	.07241	7
55	.83245	.06799	.83944	.06909	.84636	.07019	.85323	.07130	.86004	.07243	6 5
+ 14'	8.83257	.06801	8.83955	.06911	8.84648	.07022	8.85334	.07134	8.86015	.07247	4
57	.83268	.06803	.83967	.06913	.84659	.07024	.85346	.07136	.86026	.07249	3
58 59	.83280 .83292	.06805	.83978 .83990	.06915	.84671	.07026	.85357	.07138	.86038	.07251	2
+ 15'	8.83303	.06808	8.84002	.06917	$\frac{.84682}{8.84694}$.07028	$\frac{.85368}{8.85380}$.07140	.86049 8.86060	.07253	$\frac{1}{0}$
, 20		1		1				1	3.30000	*01/20%	
	21h	59m	21h	58m	21h	57m	21h	56^m	21h	55m	

	2h 5m	31° 15′	2h 6m	31° 30′	2h 7m	31° 45′	2h 8m	32° 0′	2h 9m	32° 15′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	8.86060	.07254	8.86735	.07368	8.87404	.07482	8.88068	.07598	8.88726	.07714	60
1	.86072	.07256	.86746	.07370	.87415	.07484	.88079	.07600	.88737	.07716	59
2 3	.86085 $.86094$.07258 .07260	.86757 .8676 9	.07372	.87426 .87437	.07486	.88090 .88101	.07601	.88748 .88759	.07717	58 57
+ 1	8.86105	.07262	8.86780	.07376	8.87448	.07490	8.88112	.07605	8.88769	.07721	56
5	.86117	.07264	.86791	.07377	.87460	.07492	.88123	.07607	.88780	.07723	55
6	.86128	.07266	.86802	.07379	.87471	.07494	.88134	.07609	.88791	.07725	54
$\frac{7}{+2^{\prime}}$	$\frac{.86139}{8.86151}$.07268	$\frac{.86813}{8.86825}$	$\frac{.07381}{.07383}$.87482 8.87493	$\frac{.07496}{.07498}$	$\frac{.88145}{8.88156}$.07611	$\frac{.88802}{8.88813}$.07727	53 52
7 9	.86162	.07271	.86836	.07385	.87504	.07500	.88167	.07615	.88824	.07731	51
10	.86173	.07273	.86847	.07387	.87515	.07502	.88178	.07617	.88835	.07733	50
11	.86184	.07275	.86858	.07389	.87526	.07503	.88189	.07619	.88846	.07735	49
13	8.86196 .86207	.07277	8.86869 .86880	.07391	8.87537 .87548	.07505	8.88200 .88211	.07621	8.88857 .88868	.07737	48 47
14	.86218	.07281	.86892	.07395	.87559	.07509	.88222	.07625	.88879	.07741	46
15	.86229	.07283	.86903	.07397	.87570	.07511	.88233	.07627	.88890	.07743	45
+ 4	8.86241	.07285	8.86914	.07398	8.87582	.07513	8.88244	.07628	8.88900	.07745	44
17 18	.86252 .86263	.07287	.86925 $.86936$.07400 .07402	.87593 .87604	.07515 .07517	.88255 .88266	.07630	.88911 $.88922$.07747	43 42
19	.86275	.07290	.86947	.07404	.87615	.07519	.88277	.07634	.88933	.07751	41
+ 5'	8.86286	.07292	8.86959	.07406	8.87626	.07521	8.88288	.07636	8.88944	.07752	40
21	.86297	.07294	.86970	.07408	.87637	.07523	.88299	.07638	.88955	.07754	39
22 23	.86308 .86320	.07296 .07298	.86981 $.86992$.07410 .07412	.87648 $.87659$.07525 .07527	.88310 .88321	.07640	.88966 .88977	.07756	38 37
+ 6'	8.86331	.07300	8.87003	.07414	8.87670	.07528	8.88332	.07644	8.88988	.07760	36
25	.86342	.07302	.87014	.07416	.87681	.07530	.88343	.07646	.88998	.07762	35
26	.86353	.07304	.87026	.07417	.87692	.07532	.88354	.07648	.89009	.07764	34
+ 7'	.86365	.07305	.87037	.07419	$\frac{.87703}{8.87714}$.07534	$\frac{.88364}{8.88375}$	$\frac{.07650}{.07652}$.89020	.07766	33
+ 7	8.86376 .86387	.07307	8.87048 .87059	.07423	.87725	.07536 .07538	.88386	.07654	8.89031 $.89042$.07770	31
30	.86398	.07311	.87070	.07425	.87737	.07540	.88397	.07656	.89053	.07772	30
31	.86410	.07323	.87081	.07427	.87748	.07542	.88408	.07657	.89064	.07774	29
+ 8'	8.86421	.07315	8.87093	.07429 .07431	8.87759	.07544	8.88419	.07659	8.89075 .89086	.07776	28
33 34	.86432 .86443	.07317	.87104 .87115	.07433	.87770 .87781	.07546 .07548	.88430 .88441	.07661	.89096	.07778	27 26
35	.86455	.07321	.87126	.07435	.87792	.07549	.88452	.07665	.89107	.07782	25
+ 9'	8.86466	.07322	8.87137	.07437	8.87803	.07551	8.88463	.07667	8.89118	.07784	24
37	.86477	.07324	•87148 87150	.07438	.87814	.07553	.88474	.07669	.89129	.07786	23
38 39	.86488 .86499	.07326 .07328	.87159 .87171	.07442	.87825 .87836	.07555	.88485 .88496	.07671	.89140 .89151	.07788	22 21
+ 10'	8.86511	.07330	8.87182	.07444	8.87847	.07559	8.88507	.07675	8.89162	.07791	20
41	.86522	.07332	.87193	.07446	.87858	.07561	.88518	.07677	.89172	.07793	19
42 19	.86533 $.86544$.07334	.87204 .87215	.07448	.87869 .87880	.07563	.88529 .88540	.07679	.89183 .89194	.07795	18 17
$\frac{43}{+11'}$	8.86556	.07338	$\frac{.87213}{8.87226}$.07452	8.87891	.07565	8.88551	.07683	8.89205	.07799	$\frac{17}{16}$
45	.86567	.07340	.87237	.07454	.87902	.07569	.88562	.07685	.89216	.07801	15
46	.86578	.07341	.87248	.07456	.87913	.07571	.88573	.07686	.89227	.07803	14
$\frac{47}{+12'}$	$\frac{.86589}{8.86600}$.07343	$\frac{.87260}{8.87271}$	07458	$\frac{.87924}{8.87935}$.07573	$\frac{.88584}{8.88595}$.07688	$\frac{.89238}{8.89248}$.07805	13
+ 12 49	.86611	.07345	.87282	.07459		.07574	.88606	.07690	8.89248 $.89259$.07809	12 11
50	.86623	.07349	.87293	.07463	.87957	.07578	.88616	.07694	.89270	.07811	10
51	.86634	.07351	.87304	.07465	.87968	.07589	.88627	.07696	.89281	.07813	9
+ 13′	8.86645	.07353	8.87315	.07467	8.87980 .87991	.07582	8.88638	.07698	8.89292	.07815	8
53 54	.86657 .86668	.07355	.87326 .87337	.07471	.88002	.07584 .07586	.88649 .88660	.07700	.89303 .89314	.07819	7 6
55	.86679	.07359	.87349	.07473	.88013	.07588	.88671	.07701	.89324	.07821	5
+ 14'	8.86690	.07360	8.87360	.07475	8.88024	.07590	8.88682	.07706	8.89335	.07823	4
57 58	.86701 $.86713$.07362 .07364	.87371	.07477	.88035 .88046	.07592	.88693	.07708	.89346	.07825 .07827	3
58 59	.86724	.07366	.87382 .87393	.07480	.88057	.07594	.88704 .88715	.07712	.89357 .89368	.07829	2 1
+ 15′	8.86735	.07368	8.87404	.07482	8.88068	.07598	8.88726	.07714	8.89379	.07830	0
	21h	5/m	21h 5	3m	21h	59m	21h	51m	21h	50m	
	2110	O.Y.	21.0 5		2110	0.2	2,110	01	2110	00	

	2h 10m	32° 30′	2h 11m	32° 45′	2h 12m	33° 0′	2h 13m	33′ 15′	2h 14m	33° 30′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	8.89379	.07830	8.90026	.07948	8.90668	.08066	8.91306	.08186	8.91938	.08306	60
1	.89389	.07832	.90037	.07950	.90679	.08068	.91316	.08188	.91948	.08308	59
2	.89400	.07834	.90048	.07952 .07954	.90690 .90700	.08070	.91327 .91337	.08190 .08192	.91959 $.91969$.08310 .08312	58 57
$\frac{3}{+1'}$	$\frac{.89411}{8.89422}$.07836	90058 8.90069	.07956	8.90711	.08074	8.91348	.08194	8.91980	.08314	56
$+\frac{1}{5}$.89433	.07840	.90080	.07958	.90722	.98076	.91358	.08196	.91990	.08316	55
6	.89444	.07842	.90091	.07960	.90732	.08078	.91369	.08198	.92001	.08318	54
7	.89454	.07844	.90101	.07962	.90743	.08080	.91380	.08200	.92011	.08320	53
+ 2'	8.89465	.07846	8.90112	.07964	8.90754	.08082	8.91390	.08202	8.92022	.08322	52
9	.89476 .89487	.07848	.90123 .90134	.07966 .07968	.90764 .90775	.08084	.91401 .91411	.08204	.92032	.08324 .08326	51 50
10 11	.89498	.07850 .07852	.90134	.07970	.90786	.08088	.91422	.08208	.92053	.08328	49
$\frac{11}{+3'}$	8.89509	.07854	8.90155	.07972	8.90796	.08090	8.91432	.08210	8.92064	.08330	48
13	.89519	.07856	.90166	.07974	.90807	.08092	.91443	.08212	•92074	.08332	47
14	.89530	.07858	.90176	.07976	.90818	.08094	.91454	.08214	.92084	.08334	46
15	.89541	.07860	.90187	.07978	.90828	.08096	.91464	.08216	.92095	.08336	45
+ 4'	8.89552	.07862	8.90198	.07980	8.90839 .90849	.98098	8.91475	.08218	8.92105 .92116	.08338	44
17 18	.89563 .89573	.07864 .07866	.90209 .90219	.07982	.90860	.08100	.91485 .91496	.08220 .08222	.92116	.08340	43 42
10 19	.89584	.07868	.90230	.07985	.90871	.08104	.91506	.08224	.92137	.08344	41
+ 5'	8.89595	.07870	8.90241	.07987	8.90881	.08106	8.91517	.08226	8.92147	.08346	40
21	.89606	.07872	.90252	.07989	.90892	.08108	.91527	.08228	.92158	.08348	39
22	.89617	.07873	.90262	.07991	.90903	.08110	.91538	.08230	.92168	.08350	38
23	.89627	.07875	.90273	.07993	$\frac{.90913}{8.90924}$.08112	.91549	.08232	.92179	.08352	37
+ 6' 25	8.89638	.07877	8.90284 .90294	.07995	.90935	.08114	8.91559 .91570	.08234	$8.92189 \\ .92200$.08354	36 35
26	.89660	.07881	.90305	.07999	.90945	.08118	.91580	.08238	.92210	.08358	34
27	.89671	.07883	.90316	.08001	.90956	.08120	.91591	.08240	.92221	.08360	33
+ 7	8.89681	.07885	8.90326	.08003	8.90966	.08122	8.91601	.08242	8.92231	.08362	32
29	.89692	.07887	.90337	.08005	.90977	.08124	.91612	.08244	.92241	.08364	31
30	.89703	.07889	.90348	.08007	.90988	.08126	.91622	.08246	.92252	.08366	30
$\frac{31}{+8'}$.89714	.07891	$\frac{.90359}{8.90369}$.08009	$\frac{.90998}{8.91009}$.08128	.91633	.08248	$\frac{.92262}{8.92273}$.08368	29 28
+ 8'	8.89725	.07893	.90380	.08011	.91019	.08130	8.91643 .91654	.08250	.92283	.08370	27
34	.89746	.07897	.90391	.08015	.91030	.08134	.91664	.08254	.92294	.08374	26
35	.89757	.07899	.90401	.08017	.91041	.08136	.91675	.08256	.92304	.08376	25
+ 9'	8.89768	.07901	8.90412	.08019	8.91051	.08138	8.91685	.08258	8.92315	.08378	24
37	.89779	.07903	.90423	.08021	.91062	.08140	.91696	.08260	.92325	.08380	23
38 39	.89789 .898 00	.07905	.90433	.08023	.91073 .91083	.08142	.91707 .91717	.08262	.92335 .92346	.08382	22
+ 10'	8.89811	.07909	8.90455	.08027	8.91094	.08146	8.91728	.08266	8.92356	.08386	20
41	.89822	.07911	.90466	.08029	.91104	.08148	.91738	.08268	.92367	.08388	19
42	.89832	.07913	.90476	.08031	.91115	.08150	.91749	.08270	.92377	.08390	18
43	.89343	.07915	.90487	.08033	.91126	08152	.91759	.08272	.92388	.08392	17
+ 11'	8.89854	.07917	8.90498	.08035	8.91136	.08154	8.91770	.08274	8.92398	.08394	16
45 46	.89865 .89875	.07919	.90508 .90519	.08037	.91147 .91157	.08156	.91780 .91791	.08276	.92409 .92419	.08396	15 14
47	.89886	.07923	.90530	.08041	.91168	.08160	.91791	.08280	.92419	.08400	13
+ 12'	8.89897	.07924	8.90540	.08043	8.91179	.08162	8.91812	.08282	8.92440	.08402	12
49	.89908	.07926	.90551	.08045	.91189	.08164	.91822	.08284	.92450	.08404	
50	.89919	.07928	.90562	.08047	.91200	.08166	.91833	.08286	.92461	.08406	
51	.89929	.07930	.90572	.08049	.91210	.08168	.91843	.08288	.92471	.08408	9
+ 13' 53	8.89940	.07932	8.90583 .90594	.08051	8.91221	.08170	8.91854	.08290	8.92482	.08410	8
54	.89951 .899 6 2	.07934	.90594	.08055	.91232 .91242	.08172	.91864 .91875	.08292	.92492 .92502	.08412	6
55	.89972	.07938	.90615	.08057	.91253	.08176	.91885	.08296	.92513	.08416	5
+ 14'	8.89983	.07940	8.90626	.08059	8.91263	.08178	8.91896	.08298	8.92523	.08418	4
57	.89994	.07942	.90636	.08061	.91274	.08180	.91906	.08300	.92534	▶.08420	3
58 50	.90005	.07944	.90647	.08063	.91284	.08182	.91917	.08302	.92544	.08422	2
$\frac{59}{+15'}$	90015	.07946	.90658	.08065	.91295	.08184	.91927	.08304	.92554	.08425	1
T 15	8.90026	.07948	8.90668	.08066	8.91306	.08186	8.91938	.08306	8.92565	.08427	0
	21h	49m	21h	48m	21h	47m	21h	46^m	21h	45m	
			1		1		. ~-		1 7		

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TABLE 45.

s 0 1 2 3 + 1'	Log. Hav. 8.92565 .92575 .92586	Nat. Hav.	Log. Hav.	Not How	7 77	1				1	1
1 2 3 + 1'	.92575	08497		Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
$\frac{\overset{2}{3}}{+}$			8.93187	.08548	8.93805	.08671	8.94417	.08794	8.95025	.08918	60
3 + 1'	.92000	.08429	.93197	.08550	.93815	.08673	.94427	.08796	.95035	.08920	59
+ 1'	.92596	.08431 .08433	.93208 .93218	.08552 .08554	.93825 .93835	.08675	.94438	.08798	.95045 .95055	.08922	58 57
5	8.92607	.08435	8.93228	.08556	8.93846	.08679	8.94458	.08802	8.95065	.08926	56
6	.92617 $.92627$.08437 .08439	.93239 .93249	.08558 .08560	.93856 .93866	.08681	.94468 .94478	.08804	.95076 .95086	.08928	55 54
7	.92638	.08441	.93259	.08562	.93876	.08685	.94488	.08808	.95096	.08932	53
+ 2'	8.92648	.08443	8.93270	.08564	8.93886	.08687	8.94498	.08810	8.95106	.08934	52
9 10	.92659 .92669	.08445	.93280 .93290	.08566	.93897	.08689	.94509 $.94519$.08812	.95116 $.95126$.08936	51
11	.92679	.08449	.93301	.08571	.93907 .93917	.08691	.94519	.08816	.95120	.08940	50 49
+ 3'	8.92690	.08451	8.93311	.08573	8.93927	.08695	8.94539	.08818	8.95146	.08943	48
13 14	.92700	.08453	.93321	.08575	.93938	.08697	.94549	.08820	.95156	.08945	47
15	.92710 .92721	.08455 .08457	.93332 .93342	.08577 .08579	.93948	.08699	.94559 .94570	.08823	.95166 .95176	.08947	46 45
+ 4'	8.92731	.08459	8.93352	.08581	8.93968	.08703	8.94580	.08827	8.95186	.08951	44
17	.92742	.08461	.93363	.08583	.93979	.08705	.94590	.08829	.95197	.08953	43
18 19	.92752 .92762	.08463 .08465	.93373 .93383	.08585 .08587	.93989	.08707	.94600 .94610	.08831	.95207 $.95217$.08955	42 41
$+\frac{19}{5'}$	$\frac{.92762}{8.92773}$.08467	8.93393	.08589	8.94009	.08709	$\frac{.94610}{8.94620}$.08835	$\frac{.95217}{8.95227}$.08959	$\frac{41}{40}$
21	.92783	.08469	.93404	.08591	.94019	.08714	.94630	.08837	.95237	.08961	39
22	.92794	.08471	.93414	.08593	.94030	.08716	.94641	.08839	.95247	.08963	38
23 + 6 ′	$\frac{.92804}{8.92814}$.08473	$\frac{.93424}{8.93435}$.08595	$\frac{.94040}{8.94050}$.08718	$\frac{.94651}{8.94661}$.08841	$\frac{.95257}{8.95267}$.08965	37 36
25	.92825	.08477	.93445	.08599	.94060	.08722	.94671	.08845	.95277	.08970	35
26	.92835	.08479	.93455	.08601	.94071	.08724	.94681	.08847	.95287	.08972	34
27	.92845	.08481	.93466	.08603	.94081	.08726	.94691	.08849	.95297	.08974	33
+ 29	8.92856 .92866	.08483 .08485	8.93476 .9348 6	.08605 .08607	8.94091 .94101	.08728	$8.94701 \\ .94712$.08851	8.95307 $.95317$.08976 .08978	32 31
30	.92877	.08487	.93496	.08609	.94111	.08732	.94722	.08856	.95327	.08980	30
31	.92887	.08489	.93507	.08611	.94122	.08734	.94732	.08858	.95337	.08982	29
+ 8'	8.92897	.08491	8.93517	.08613	8.94132	.08736	8.94742	.08860	8.95347	.08984	28
34	.92908 .92918	.08493 .08495	.93527 .93538	.08615 .08617	.94142 $.94152$.08738 .08740	.94752 .94762	.08862	.95357 .95368	.08986 .08988	27 26
35	.92928	.08497	.93548	.08619	.94162	.08742	.94772	.08866	.95378	.08990	25
	8.92939	.08499	8.93558	.08621	8.94173	.08744	8.94782	.08868	8.95388	.08992	24
37 38	.92949	.08501 .08503	.93568 .93579	.08624	.94183 .94193	.08746	.94793 .94803	.08870	.95398	.08994	23
39	.92970	.08505	.93589	.08628	.94203	.08750	.94813	.08874	.95418	.08999	21
	8.92980	.08508	8.93599	.08630	8.94213	.08753	8.94823	.08876	8.95428	.09001	20
41	.92991	.08510	.93610	.08632	.94224	.08755	.94833	.08878	.95438	.09003	19
42 43	.93001	.08512 .08514	.93620 .93630	.08634 .08636	.94234	.08757 .08759	.94843 .94853	.08880	.95448	.09005 .09007	18 17
	8.93022	.08516	8.93640	.08638	8.94254	.08761	8.94863	.08885	8.95468	.09009	16
45	.93032	.08518	.93651	.08640	.94264	.68763	.94874	.08887	.95478	.09011	15
46 47	.93042 .93053	.08520	.93661 .93671	.08642	.94275 $.94285$.08765 .08767	.94884 .94894	.08889	.95488 .95498	.09013 .09015	$\frac{14}{13}$
	8.93063	.08524	8.93681	.08646	8.94295	.08769	8.94904	.08893	8.95508	.09017	12
49	.93073	.08526	.93692	.08648	.94305	.08771	.94914	.08895	.95518	.09019	11
50 51	.93084	.08528	.93702	.08650	.94315	.08773	.94924	.08897	.95528	.09022	10
	$\frac{.93094}{8.93104}$.08530	$\frac{.93712}{8.93722}$.08652	.94326 8.94336	.08775	$\frac{.94934}{8.94944}$.08899	.95538 8.95548	.09024	$\frac{9}{8}$
53	.93115	.08534	.93733	.08656	.94346	.08779	.94954	.08903	.95558	.09028	7
54	.93125	.08536	.93743	.08658	.94356	.08781	.94965	.08905	.95568	.09030	6
55 + 14'	$\frac{.93135}{8.93146}$.08538	$\frac{.93753}{8.93764}$.08660	.94366 8.94376	08783 08785	$\frac{.94975}{8.94985}$.08907	$\frac{.95578}{8.95588}$.09032	5
57	e 93156	.08542	.93774	.08664	.94387	.08788	.94995	.08911	.95598	.09036	4
58	.93166	.08544	.93784	.08666	.94397	.08790	.95005	.08914	.95608	.09038	2
59 + 15 ′	.93177	.08546	$\frac{.93794}{8.93805}$.08668	.94407	.08792	.95015	.08916	.95618	.09040	$\frac{1}{0}$
T 10	8.93187	.08548	0.93800	.02071	8.94417	.08794	8.95025	.02319	8.95628	.09042	U
	21h.	44m	21h	43m	21h	42m	21h.	41m	21h.	40m	

· ·				7	FABLE	45.				[Page 8	39
					Haversin	nes.					
		35° 0′	2h 21m			35° 30′		35° 45′	2h 24m		
s	Log. Hav.					Nat. Hav.	l	Nat. Hav.	Log. Hav.		s
0	8.95628 .95638	.09042	8.96227 .96237	.09168	8.96821 $.96831$.09294	8.97411 .97421	.09421	8.97997 .98006	.09549 .09551	60 59
2	.95648	.09047	.96247	.09172	.96841	.09298	.97431	.09426 .09428	.98016 .98026	.09553 .09556	58 57
$\frac{3}{+1'}$	$\frac{.95658}{8.95658}$.09049	$\frac{.96257}{8.96267}$.09174	$\frac{.96851}{8.96861}$.09301	$\frac{.97441}{8.97450}$.09430	8.98035	.09558	56
+ 1/5	.95678	.09953	.96277	.09178	.96871	.09305	.97460	.09432	.98045	.09560	55
6 7	.95688 .95698	.09055	.96287 .96297	.09181	.96881 .96890	.09307	.97470 .97480	.09434	.98055 .98065	.09562 .09564	54 53
+ 2'	8.95709	.09059	8.96307	.09185	8.96900	.09311	8.97489	.09438	8.98074	.09566	52
9	.95719	.09061	.96317	.09187	.96910 .96920	.09313	.97499 .97509	.09440	.98084	.09568 .09571	51 50
10 11	.95729	.09063	.96326 .96336	.09191	.96930	.09317	.97519	.09445	.98103	.09573	49
+ 3'	8.95749	.09067	8.96346	.09193	8.96940	.09320	8.97529	.09447	8.98113	.09575 .09577	48
13 14	.95759 .95769	.09070	.96356 .96366	.09195	.96950 .96959	.09322	.97538 .97548	.09449	.98123 .98132	.09579	47 46
15	.95779	.09074	.96376	.09199	.96969	.09326	.97558	.09453	.98142	.09581	45
+ 4'	8.95789 .95799	.09076 .09078	8.96386 .96396	.09202	8.96979 .96989	.09328 .09330	8.97568 $.97577$.09455	8.98152 .98162	.09583	44 43
17 . 18	.95799	.09080	.96406	.09206	.96999	.09332	.97587	.09460	.98171	.09588	42
19	.95819	.09082	.96416	.09208	.97009	.09334	.97597	.09462	.98181	.09590	41
+ 5'	8.95828 .95838	.09084	8.96426 .96436	.09210 .09212	8.97018 .97028	.09337	8.97607 $.97617$.09464	$8.98191 \\ .98200$.09592 .09594	40 39
22	.95848	.03088	.96446	.09214	.97038	.09341	.97626	.09468	.98210	.09596	38
23	.95858	.09090	.96455	.09216	$\frac{.97048}{8.97058}$.09343	$\frac{.97636}{8.97646}$.09479	$\frac{.98220}{8.98229}$.09598	37 36
+ 6'	8.95868 .95878	.09093	$8.96465 \\ .96475$.09218	.97068	.09347	.97656	.09474	.98239	.09603	35
26	.95888	.09097	.96485	.09223	.97077	.09349	.97665	.09477	.98249 $.98259$.09605	34 33
+ 7'	.95898 8.95908	.09099	$\frac{.96495}{8.96505}$.09225	$\frac{.97087}{8.97097}$.09351	$\frac{.97675}{8.97685}$.09479	8.98268	.09609	32
29	95918	.09193	.96515	.09229	.97107	.09356	.97695	.09483	.98278	.09611	31
30 31	.95928 .95938	.09105	.96525 .96535	.09231	.97117 .97127	.09358	.97704 .97714	.09485	.98288 .98297	.09613	30 29
+ 8'	8.95948	.09109	8.96545	.09235	8.97136	.09362	8.97724	.09489	8.98307	.03618	28
33	.95958	.09111	.96555	.09237	.97146	.09364	.97734	.09492	.98317	.09620	27 26
34 35	.95968 .95978	.09113	.96564 .96574	.09239	.97156 .97166	.09366	.97743 .97753	.09494	.98326 .98336	.09622	25 25
+ 9'	8.95988	.09118	8.96584	.09244	8.97176	.09370	8.97763	.09498	8.98346	.09626	24
37	.95998 .96008	.09120	.96594 .96604	.09246	.97186 .97195	.09372	.97773 .97782	.09500	.98355 .98365	.09628	23 22
38 39	.96018	.09124	.96614	.09250	.97205	.09377	.97792	.09504	.98375	.09633	21
+ 10′	8.96028	.09126	8.96624	.09252	8.97215	.09379	8.97802	.09506	8.98384	.09635	20
41 42	.96038 .96048	.09128	.96634	.09254	.97225 .97235	.09381	.97812 .97821	.09509	.98394 .98404	.09637	19 18
43	.96058	.09132	.96653	.09258	.97244	.09385	.97831	.09513	.98413	.09641	17
+ 11'	8.96068	.09134 .09136	8.96663	.09260	8.97254 $.97264$		8.97841 .97851	.09515	8.98423 .98433	.09643	16 15
45 46	.96078 .96088	.09136	.96673 .96683	.09263				.09519	.98442	.09648	14
47	.96098	.09141	.96693	.09267	.97284	.09394	.97870	.09521	.98452		13
$+\frac{12'}{49}$	8.96108 .96118	.09143		.09269	8.97294 .97303		8.97880 .97890		8.98462 .98471	.09652 .09654	12 11
50	.96128	.09147	.96723	.09273	.97313	.09400	.97899	.09528	.98481	.09656	10
51	.96138		_						.98491 8.98500		$\frac{9}{8}$
$+\frac{13}{53}$	8.96148 .96158		.96752		8.97333 .97343			.09534	.98510	.09663	7
54	.96167	.09155	.96762	.09282	.97352	.09409	.97938	.09536	.98520		6 5
$\frac{55}{+ 14'}$.96177 8.96187								$\frac{.98529}{8.98539}$		4
57	.96197	.09162	.96792	.09288	.97382	.09415	.97967	.09543	.98549	.09671	3
58 59	.96207 .96217								.98558 .98568		2
+ 15'	8.96227								8.98578		0
		1 39m	211	38m	217	h 37m	21	1 36m	21	35m	
	l ~1		71		1 ~1						1

approxime sixte gin 4.

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·TABLE 45.

2h 28	Ī	2h 2811	37° 0′	2h 29m	37° 15′	
g. Ha	v. I	Log. Hav	Nat. Hav	Log. Hav.	Nat. Hav	s
		9.00295	.10068		.10200	60
		.00305	.10070 .10073		.10202 .10204	59 58
		.00324	.10075		.10204	57
	-1-	9.00333	.10077		.10209	56
	3	.00342	.10079		.10211	55
		.00352	.10081		.10213	54
	9	$\frac{.00361}{9.00371}$.100S4 .10086	-1	$\frac{.10215}{.10218}$	53 52
		.00380	.10088		.10218	51
		.00390	.10090		.10222	50
	_	.00399	.10092		.10224	49
	0 -	9.00408	.10095		.10226	48
		.00418	.10097	.00981	.10228 .10231	47 46
		.00437	.10101		.10233	45
	-0-	9.00446	.10103		.10235	44
		.00456	.10105		.10237	43
		.00465	.10108		.10240	42
		.00474	.10110	-t	.10242	41
	9	9.00484	.10112		.10244	40 39
		.00503	.10116		.10248	38
		.00512	.10119	-	.10251	37
		9.00522	.10121	0.000	.10253	36
		.00531 .00540	.10123	.01094	.10255	35
		.00550	.10127	01112	.10259	34 33
		9.00559	.10130	9.01122	.10262	32
		.00569	.10132	.01131	.10264	31
		.00578	.10134	.01140	.10266	30
	-8-	00587 9.00597	.10136	01150 9.01159	.10268	29 28
	9	.00606	.10141	.01168	.10273	27
		.00616	.10143	.01178	.10275	26
		.00625	.10145	.01187	.10277	25
		9.00634	.10147	9.01196	.10279	24
		.00644	.10149 .10152	.01206	.10281	23 22
		.00663	.10154	.01224	.10286	21
00672	9	9.00672	.10156	9.01234	.10288	20
	1	.00681	.10158	.01243	.10290	19
		.00691	.10160 .10163	.01252	.10293	18
	- 8	$\frac{.00700}{9.00710}$.10165	9.01271	.10297	17 16
		.00719	.10167	.01280	.10299	15
		.00728	.10169	.01289	.10301	14
		.00738	.10171	.01299	.10304	13
		9.00747 $.00756$.10174 .10176	9.01308 .01317	.10306 .10308	12 11
		.00766	.10178	.01317	.10303	10
		.00775	.10180	.01336	.10312	9
		9.00785	.10182	9.01345	.10315	8
		.00794	.10184	.01355	.10317	7
		.00803	.10187	.01364	.10319	6 5
		9.00822	.10191	9.01383	.10323	4
		.00831	.10193	.01392	.10326	3
		.00841	.10196	.01401	.10328	2
	_	.00850	.10198	.01411	.10330	1
UUSUU	19	9.00860	.10200	9.01420	.10332	0
21		21h	31m	21h	30m	
21		21h	31m		21h	21h 30m

	2h 30m	37° 30′	2h 31m	37° 45′	2h 32m	38° 0′	2h 33m	38° 15′	2h 34m	38° 30′	<u> </u>
s	Log. Hav.		Log. Hav.					Nat. Hav.			s
0	9.01420	.10332	9.01976	.10466	9.02528	.10599	9.03077	.10734	9.03621	.10870	60
1 `	.01429	.10335	.01985	.10468	.02538	.10602	.03086	.10736	.03630	.10872	59
2 3	.01438	.10337 .10339	0.01995 0.02004	.10470 .10472	0.02547 0.02556	.10604 .10606	.03095 .03104	.10739 .10741	.03639 .03648	.10874	58 57
+ 1'	9.01457	.10341	9.02013	.10474	$\frac{0.02565}{9.02565}$.10608	$\frac{0.03101}{9.03113}$.10743	$\frac{0.03657}{9.03657}$.10879	56
5	.01466	.10343	.02022	.10477	.02574	.10611	.03122	.10745	.03667	.10881	55
6 7	.01476 .01485	.10346	.02031	.10479 .10481	.02583 .02593	.10613 .10615	.03131 $.03141$.10748	.03676	.10883 .10885	54
+ 2'	9.01494	.10348	$\frac{.02041}{9.02050}$.10483	9.02602	.10617	$\frac{0.03141}{9.03150}$.10750 .10752	9.03694	.10888	52
9	.01504	.10352	.02059	.10486	.02611	.10620	.03159	.10754	.03703	.10890	51
10	.01513	.10354	.02068	.10488	.02620	.10622	.03168	.10757	.03712	.10892	50 49
$\frac{11}{+3'}$	0.01522 9.01531	.10357	$\frac{.02078}{9.02087}$.10490 .10492	02629 9.02638	.10624	$\frac{.03177}{9.03186}$.10759 .10761	$\frac{.03721}{9.03730}$.10895 .10897	48
13	.01541	.10361	.02096	.10494	.02648	.10629	.03195	.10763	.03739	.10899	47
14	.01550	.10363	.02105	.10497	.02657	.10631	.03204	.10766	.03748	.10901	46
15	.01559	.10366	.02115	.10499	.02666	.10633	.03213	.10768	.03757	.10904	$\frac{45}{44}$
+ 4'	9.01569	.10368 .10370	9.02124	.10501 .10503	$9.02675 \\ .02684$.10635 .10638	9.03222	.10770 .10772	9.03766 .03775	.10906 .10908	44 43
18	.01587	.10372	.02142	.10506	.02693	.10640	.03241	.10775	.03784	.10910	42
- 19	.01596	.10374	.02151	.10508	.02702	.10642	.03250	.10777	.03793	.10913	41
+ 5'	9.01606 .01615	.10377 .10379	9.02161	.10510 .10512	9.02712	.10644	9.03259	.10779 .10781	9.03802	.10915	40 39
21 22	.01624	.10379	.02170	.10512	.02721 .02730	.10647 .10649	.03268 .03277	.10784	.03811 $.03820$.10917	38
23	.01634	.10383	.02188	.10517	.02739	.10651	.03286	.10786	.03829	.10922	37
+ 6'	9.01643	.10386	9.02197	.10519	9.02748	.10653	9.03295	.10788	9.03838	.10924	36
25 26	0.01652 0.01661	.10388 .10390	.02207 $.02216$.10521 .10523	0.02757 0.02767	.10655 .10658	.03304	.10790 .10793	.03847 $.03856$.10926 .10929	35 34
27	.01671	.10392	.02225	.10526	.02776	.10660	.03322	.10795	.03865	.10933	33
+ 7'	9.01680	.10394	9.02234	.10528	9.02785	.10662	9.03331	.10797	9.03874	.10933	32
29	.01689	.10397	.02244	.10530	.02794	.10664	.03340	.10799	.03883	.10935	31
· 30 31	.01698 .01708	.10399 .10401	.02253 $.02262$.10532 .10535	.02803 .02812	.10667 .10669	.03350 .03359	.10802 .10804	.03892 .03901	.10938 .10940	30 29
+ 8'	9.01717	.10403	9.02271	.10537	9.02821	.10671	9.03368	.10806	9.03910	.10942	28
33	.01726	.10405	.02280	.10539	.02830	.10673	.03377	.10809	.03919	.10944	27
34 35	.01736 .01745	.10408 .10410	.02290 .02299	.10541 .10544	.02840	.10676 .10678	.03386	.10811	.03928	.10947	26 25
+ 9'	$\frac{.01740}{9.01754}$.10412	9.02308	.10546	$\frac{.02848}{9.02858}$.10680	03395 9.03404	.10813	.03937 9.03946	.10949	24
37	.01763	.10414	.02317	.10548	.02867	.10682	.03413	.10818	.03955	.10953	23
38	.01773 $.01782$.10417	.02326	.10550	.02876	.10685	.03422	.10820	.03964	.10956	22
39 + 10 ′	9.01791	.10419	02336 9.02345	.10552	02885 9.02894	.10687	$\frac{.03431}{9.03440}$.10822	$\frac{.03973}{9.03982}$.10958 .10960	20
41	.01800	.10423	.02354	.10557	.02904	.10691	.03449	.10827	.03991	.10963	19
42	.01810	.10425	.02363	.10559	.02913	.10694	.03458	.10329	.04000	.10965	18
+ 11'	$\frac{.01819}{9.01828}$.10428	$\frac{.02372}{9.02381}$.10561	.02922	.10696	.03467	.10831	.04009	.10967	17
+ 11 ⁷ 45	.01837	.10430 .10432	.02391	.10564 .10566	9.02931 $.02940$.10698 .10700	9.03476 03486	.10833 .10836	9.04018 .04027	.10969 .10972	16 15
46	.01847	.10434	.02400	.10568	.02949	.10703	.03495	.10838	.04036	.10974	14
47	.01856	.10436	.02409	.10570	.02958	.10705	.03504	.10840	.04045	.10976	13
+ 12' 49	$9.01865 \\ .01874$.10439	9.02418 $.02427$.10573 .10575	9.02967 $.02977$.10707	9.03513 $.03522$.10842	9.04054	.10978 .10981	12 11
50	.01884	.10443	.02437	.10577	.02986	.10712	.03531	.10847	.04072	.10983	10
51	.01893	.10445	.02446	.10579	.02995	.10714	.03540	.10849	.04081	.10985	9
+ 13' 53	9.01902 .01911	.10448 .10450	9.02455 .02464	.10582 .10584	9.03004	.10716	9.03549	.10851	9.04090	.10988	8
54	.01911	.10452	.02464	.10586	.03013	.10718 .10721	.03558	.10854	.04099 .04108	.10990 .10992	7 6
55	.01930	.10454	.02483	.10588	.03031	.10723	.03576	.10858	.04117	.10994	5
+ 14'	9.01939	.10457	9.02492	.10591	9.03040	.10725	9.03585	.10861	9.04126	.10997	4
57 58	.01948	.10459 .10461	.02501 $.02510$.10593 .10595	.03050 .03059	.10727	.03594	.10863 .10865	.04135	.10999 .11001	3 2
59	.01967	.10463	.02519	.10597	.03068	.10732	.03612	.10867	.04153	.11001	1
+ 1,5′	9.01976	.10466	9.02528	.10599	9.03077	.10734	9.03621	.10870	9.04162	.11006	0
	21h	29m	21h	28m	21h	27m	21h	26m	21h	25m	
							~-		~		

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TABLE 45.

<u> </u>					1				1		
	2h 35m	38° 45′	2h 36m	39° 0⁄	2h 37m	39° 15′	2h 38m	39° 30′	2h 39m	39° 45′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.04162	.11006	9.04699	.11143	9.05232	.11280	9.05762	.11419	9.06288	.11558	60
1	.04171	.11008	.04708	.11145	.05241	.11283	.05771	.11421	.06297	.11560	59
2	.04180	.11010	.04717	.11147	.05250	.11285	.05780	.11423	.06305	.11563 .11565	58
3	.04189	.11013	.04726	J	$\frac{.05259}{9.05268}$.11287	.05788	.11426	0.06314	.11567	57 56
+ 1' 5	9.04198	.11015 .11017	9.04735	.11152	.05277	.11290 .11292	9.05797 .05806	.11430	9.06323	.11569	55
6	.04216	.11019	.04753	.11156	.05285	.11294	.05815	.11433	.06340	.11572	54
7	.04225	.11022	.04761	.11159	.05294	.11296	.05823	.11435	.06349	.11574	53
+ 2'	9.04234	.11024	9.04770	.11161	9.05303	.11299	9.05832	.11437	9.06358	.11577	52
9	.04243	.11626	.04779	.11163	.05312	.11301	.05841	.11440	.06367	.11579	51
10	.04252	.11029	.04788	.11166	.05321	.11303	.05850	.11442	.06375	.11581	50
$\frac{11}{+3'}$.04261	.11031	.04797	.11168	$\frac{.05330}{9.05339}$.11306	.05859	.11444	$\frac{.06384}{9.06393}$.11584 .11586	49 48
+ 3′	9.04270	.11033 .11035	9.04806 .04815	.11172	.05347	.11308 .11310	9.05867 0.05876	.11447	.06401	.11588	47
14	.04288	.11038	.04824	.11175	.05356	.11313	.05885	.11451	.06410	.11590	46
15	.04297	.11040	.04833	.11177	.05365	.11315	.05894	.11453	.06419	.11593	45
+ 4'	9.04306	.11042	9.04842	.11179	9.05374	.11317	9.05903	.11456	9.06428	.11595	44
17	.04315	.11044	.04851	.11182	.05383	.11320	.05911	.11458	.06436	.11597	4.3
13	.04324	.11047	.04859	.11184	.05392	.11322	.05920	.11460	.06445	.11600	42
$\frac{19}{+5'}$	$\frac{.04333}{9.04341}$.11049	$\frac{.04868}{9.04877}$	$\frac{11186}{.11189}$	$\frac{.05400}{9.05409}$.11324	$\frac{.05929}{9.05938}$.11463	$\frac{.06454}{9.06462}$.11602	$\frac{41}{40}$
21	.04350	.11054	.04886	.11191	.05418	.11329	.05946	.11467	.06471	.11607	39
22	.04359	.11056	.04895	.11193	.05427	.11331	.05955	.11470	.06480	.11609	38
23	.04368	.11058	.04904	.11195	.05436	.11333	.05964	.11472	.06489	.11611	37
+ 6'	9.04377	.11060	9.04913	.11198	9.05445	.11336	9.05973	11474	9.06497	.11614	36
25 26	04386 04395	.11063 .11065	.04922	.11200 .11202	.05453 .05462	.11338 .11340	.05982	.11477	.06506 $.06515$.11616 .11618	35 34
27	.04404	.11067	.04939	.11205	.05402	.11343	.05999	.11481	.06523	.11621	33
+ 7'	9.04413	.11070	9.04948	.11307	9.05480	.11345	9.06008	.11484	$\frac{0.06532}{9.06532}$.11623	32
29	.04422	.11072	.04957	.11209	.05489	.11347	.06017	.11486	.06541	.11625	31
30	.04431	.11074	.04966	.11211	.05498	.11349	.06025	.11488	.06550	.11628	30
31	.04440	.11076	.04975	.11214	.05506	.11352	.06034	.11491	.06558	.11639	29
+ 8'	9.04449 $.04458$.11079 .11081	9.04984	.11216 .11218	$9.05515 \\ .05524$.11354	9.06043	.11493 .11495	9.06567	.11632 .11635	28 27
34	.04467	.11083	.05002	.11221	.05533	.11359	.06052 .06060	.11498	.06576 $.06584$.11637	26
35	.04476	.11086	.05011	.11223	.05542	.11361	.06069	.11500	.06593	.11639	25
+ 9'	9.04485	.11088	9.05019	.11225	9.05551	.11363	9.06078	.11502	9.06602	.11642	24
37	.04494	.11090	.05028	.11228	.05559	.11366	.06087	.11504	.06611	.11644	23
38 39	.04503 $.04512$.11092 .11095	.05037	.11230 .11232	.05568	.11368	.06095	.11507	.06619	.11646	22
+ 10'	9.04520	.11097	$\frac{.05046}{9.05055}$.11234	$\frac{.05577}{9.05586}$.11370	$\frac{.06104}{9.06113}$.11509	$\frac{.06628}{9.06637}$.11649	$\frac{21}{20}$
41	.04529	.11099	.05064	.11237	.05595	.11375	.06122	.11511	.06645	.11653	19
42	.04538	.11102	.05073	.11239	.05603	.11377	.06131	.11516	.06654	.11656	18
4.3	.04547	.11104	.05082	.11241	05612	.11379	.06139	.11518	.06663	.11658	17
+ 11'	9.04556	.11106	9.05090	.11244	9.05621	.11382	9.06148	.11521	9.06671	.11660	16
45 46	.04565 $.04574$.11108 .11111	.05099	.11246 .11248	.05630	.11384 .11386	.06157	.11523	.06680	.11663 .11665	15 14
47	.04583	.11113	.05103	.11251	.05639	.11389	.06166 $.06174$.11525 .11528	.06689	.11667	13
+ 12'	9.04592	.11115	9.05126	.11253	9.05656	.11391	9.06183	.11530	9.06706	.11679	12
49	.04601	.11117	.05135	.11255	.05665	.11393	.06192	.11532	.06715	.11672	11
50	.04610	.11120	.05144	.11257	.05674	.11396	.06201	.11535	.06724	.11674	10
51	.04619	.11122	.05153	.11260	.05683	.11398	.06209	.11537	.06732	.11677	9
+ 13 ′ 53	9.04628 .04637	.11124 .11127	9.05161 .05170	.11262 .11264	9.05692 .05700	.11400 .11403	$9.06218 \\ .06227$.11539 .11542	$9.06741 \\ .06750$.11679 .11681	8
54	.04646	.11129	.05179	.11267	.05700	.11405	.06227	.11544	.06758	.11684	6
55	.04654	.11131	.05188	.11269	.05718	.11407	.06244	.11546	.06767	.11686	5
+ 14'	9.04663	.11134	9.05197	.11271	9.05727	.11410	9.06253	.11549	9.06776	.11688	4
57 59	.04672	.11136	.05206	.11274	.05736	.11412	.06262	.11551	.06784	.11691	3
58 59	.04681	.11138 .11140	$.05215 \\ .05223$.11276 .11278	.05744 .05753	.11414	.06270	.11553 .11556	.06793	.11693 .11695	2
+ 15'	9.04699	.11143	$\frac{.05223}{9.05232}$.11280	9.05762	.11419	$\frac{.06279}{9.06288}$.11558	9.06810	.11698	$\frac{1}{0}$
1.0											
	21h	24m	21h	23m	21h	22m	21h	21m	21h	20m	
								•			

					Haversines.						
	2h 40m	40° 0′	2h 41m	40° 15′	2h 42m	40° 30′	2h 43m	40° 45′	2h 44m	41° 0′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8						
0	9.06810	.11698	9.07329	.11838	9.07845	.11980	9.08357	.12122	9.08865	.12265	60
1	.06819	.11700	.07338	.11841	.07853	.11982 .11984	.08365	.12124	.08874	.12267	59
2 3	.06828 $.06836$.11702 .11705	.07346 .07355	.11843 .11845	.07862 .07870	.11984	08374 08382	.12127 .12129	.08882	.12269 .12272	58 57
+ 1'	9.06845	.11707	9.07364	.11848	9.07879	.11989	9.08391	.12131	9.08899	.12274	56
5	.06854	.11709	.07372	.11850	.07887	.11992	.08399	.12134	.08907	.12276	55
6	.06862	.11712	.07381	.11852	.07896	.11994	.08408	.12136	.08916	.12279	54
$\frac{7}{+2'}$	$\frac{.06871}{9.06880}$.11714	07390 9.07398	.11855	0.07905 9.07913	.11996	$\frac{.08416}{9.08425}$.12138	08924 9.08933	.12281	53 52
$+\frac{2}{9}$.06888	.11716	.07407	.11860	.07922	.12001	.08433	.12143	.08941	.12286	51
10	.06897	.11721	.07415	.11862	.07930	.12003	.08442	.12146	.08949	.12288	50
11	.06906	.11724	.07424	.11864	.07939	.12006	.08450	.12148	08958	.12291	49
+ 3'	9.06914	.11726	9.07433	.11867	9.07947	.12008 .12010	9.08459	.12150	9.08966	.12293 .12296	48
13 14	0.06923 0.06932	.11728 .11731	0.07441 0.07450	.11869 .11871	.07956 $.07964$.12013	.08467 .08475	.12153 .12155	.08975	.12298	47 46
15	.06940	.11733	.07458	.11874	.07973	.12015	.08484	.12157	.08992	.12300	45
+ 4'	9.06949	.11735	9.07467	.11876	9.07981	.12018	9.08492	.12160	9.09000	.12303	44
17	.06958	.11738	.07476	.11878	.07990	.12020	.08501	.12162	.09009	.12305	43
18 19	0.06966 0.06975	.11740 .11742	.07484	.11881 .11883	.07999 .08007	.12022 .12025	.08509 .08518	.12165 .12167	0.09017 0.09025	.12307 .12310	42 41
+ 5'	9.06984	.11745	9.07501	.11885	9.08016	.12027	$\frac{.00518}{9.08526}$.12169	9.09034	.12312	$\frac{71}{40}$
21	.06992	.11747	.07510	.11888	.08024	.12029	.08535	.12172	.09042	.12315	39
22	.07001	.11749	.07519	.11890	.08033	.12032	.08543	.12174	.09051	.12317	38
23	.07010	.11752	.07527	.11892	.08041	.12034	.08552	.12176	.09059	.12319	37
+ 6'	9.07018	.11754	9.07536	.11895 .11897	9.08050	.12036 .12039	$9.08560 \\ .08569$.12179 .12181	9.09068	.12322 .12324	36 35
26	.07036	.11759	.07553	.11900	.08067	.12041	.08577	.12184	.09084	.12327	34
27	.07044	.11761	.07562	.11902	.08075	.12044	.08586	.12186	.09093	.12329	33
+ 7'	9.07053	.11763	9.07570	.11904	9.08084	.12946	9.08594	.12188	9.09101	.12331	32
29 30	.07062 .07070	.11766 .11768	.07579 .07587	.11907 .11909	.08092 .08101	.12048 .12051	.08603 $.08611$.12191 .12193	.09110 .09118	.12334 .12336	31 30
31	.07079	.11770	.07596	.11911	.08110	.12053	.08620	.12195	.09126	.12339	29
+ 8'	9.07088	.11773	9.07605	.11914	9.08118	.12055	9.08628	.12198	9.09135	.12341	28
33	.07096	.11775	.07613	.11916	.08127	.12058	.08637	.12200	.09143	.12343	27
34 35	.07105 .07113	.11777	.07622 .07630	.11918 .11921	.08135	.12060 .12062	.08645	.12203 .12205	.09152 $.09160$.12346 .12348	26 25
+ 9'	9.07122	.11782	9.07639	.11923	9.08152	.12065	9.08662	.12207	9.09169	.12351	24
- 37	.07131	.11784	.07647	.11925	.08161	.12067	.08671	.12210	.09177	.12353	23
38	.07139	.11787	.07656	.11928	.08169	.12070	.08679	.12212	.09185	.12355	22
39 + 10'	$\frac{.07148}{9.07157}$.11789	$\frac{.07665}{9.07673}$.11930	.08178	.12072	0.08687	.12214	.09194	.12358	21
41	.07165	.11794	.07682	.11933 .11935	9.08186 .08195	.12074 .12077	9.08696 .08704	.12217 .12219	9.09202 $.09211$.12360 .12363	20 19
42	.07174	.11796	.07690	.11937	.08203	.12079	.08713	.12222	.09219	.12365	18
43	.07183	.11798	.07699	.11940	.08212	12081	.08721	.12224	.09227	.12367	17
+ 11'	9.07191	.11801	9.07708	.11942	9.08220	.12084	9.08730	.12226	9.09236	.12370	16
45 46	.07208	.11803 .11806	.07716 .07725	.11944	.08229 $.08237$.12086 .12089	.08738 .08747	.12229 .12231	.09244 $.09253$.12372 .12374	15 14
47	.07217	.11808	.07733	.11949	.08246	.12091	.08755	.12233	.09261	.12377	1.3
+ 12'	9.07226	.11810	9.07742	.11951	9.08254	.12093	9.08764	.12236	9.09269	.12379	12
49	.07234	.11813	.07750	.11954	.08263	.12096	.08772	.12238	.09278	.12382	11
50 51	.07243 .07252	.11815	.07759 .07768	.11956 .11958	.08271 .08280	.12098 .12100	.08781 .08789	.12241 .12243	.09286 $.09295$.12384 .12386	10 9
+ 13'	9.07260	.11820	9.07776	.11961	9.08288	.12103	9.08797	.12245	9.09303	.12389	8
53	.07269	.11822	.07785	.11963	.08297	.12105	.08806	.12248	.09311	.12391	7
54 55	.07277 .07286	.11824 .11827	.07793	.11966 .11968	.08306 .08314	.12108 .12110	.08814	.12250 .12253	.09320 $.09328$.12394 .12396	6
+ 14'	$\frac{.07280}{9.07295}$.11829	9.07810	.11970	9.08323	.12112	9.08831	.12255	9.09337	.12398	<u>5</u> 4
57	.07303	.11831	.07819	.11973	.08331	.12115	.08840	.12257	.09345	.12401	3
58	.07312	.11834	.07827	.11975	.08340	.12117	.08848	.12260	.09353	.12493	2
59 + 15'	$\frac{.07321}{9.07329}$.11836	$\frac{.07836}{9.07845}$.11977	$\frac{.08348}{9.08357}$.12119	.08857	$\frac{.12262}{.12265}$	0.09362	.12406	1
10							9.08865		9.09370		0
	21h	1911	21h	1811	21h	17116	21h	16 ⁷¹¹	21h	$15^{\eta n}$	

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	ļ,				110.001			67 1000	400 04	-1	100 101	
0 9,09370 12408 9,09872 12555 10379 12700 10874 12845 11366 12992 60 837 12413 0,0989 12555 10379 12700 10874 12845 11366 12992 60 8387 12413 0,09890 12555 10379 12700 10874 12845 11366 12992 60 8387 12413 0,09897 12555 10395 12704 10891 12855 113874 12994 56 3 0,0935 12415 0,0987 12556 10395 12704 10891 12855 11382 12994 56 5 0,09412 12420 0,09914 12566 10412 12709 1,0989 12855 11399 13001 56 6 0,09412 12422 0,09924 12367 0,0420 12712 1,0915 12855 11399 13001 56 6 0,09421 12425 0,09920 12366 10429 12712 1,0915 12855 11399 13001 56 6 0,09421 12425 0,09920 12366 10429 12712 1,0915 12855 11399 13001 56 1 0,09429 12425 0,09924 12576 1,0043 12712 1,0055 12856 11415 13006 36 1 0,09429 12425 0,09930 12566 10429 12714 1,0923 12856 1,1145 13006 36 1 0,09429 12425 0,09930 12566 10429 12714 1,0923 12856 1,1145 13006 36 1 0,09446 12433 0,09947 12376 1,0043 12725 1,0052 12856 1,1145 13006 36 1 0,0945 12434 0,0996 12376 1,0043 12725 1,0945 12856 1,1145 13006 36 1 1 0,0945 12856 1,0945 12736 1,0945 12725 1,0945 12856 1,1444 1,0945 1273 1,0945 12856 1,1444 1,0945 1273 1,0945 12856 1,0945 12736 1,0945 12856 1,0945 12736 1,0955 12875 1,1147 1,0045 12736 1,0945 12856 1,0945 12736 1,0955 12875 1,1147 1,0045 1275 1,0945 12856 1,0945 12736 1,0955 12875 1,0945 12856 1,0945 12736 1,0955 12875 1,0945 12856 1,0945 12736 1,0955 12875 1,0945 12856 1,0945 12856 1,0945 12738 1,0955 12875 1,0945 12856 1,0945 12738 1,0957 12858 1,0945 12856 1,0945 12738 1,0957 12858 1,0945 12856 1,0945 12738 1,0957 12858 1,0945 12856 1,0945 12738 1,0957 12858 1,0945 12856 1,0945 12856 1,0945 12738 1,0957 12858 1,0945 12738 1,0957 12858 1,0945 12856 1,0945 12738 1,0957 12858 1,0945 12856 1,0945 12738 1,0957 12858 1,0945 12858	1 1	2h 45m	41° 15′	2h 46m	41° 30′	2h 47m	41° 45′	2h 48m	42° 0′	2h 49m	42° 15′	
1	s	Log. Hav.	Nat. Hav.	8								
2 .09385 .12413 .09889 .12550 .10385 .12704 .10891 .12845 .11382 .12996 .57 + Y 9.09404 .12418 9.09905 .12562 .010404 .12707 .010891 .12852 .911391 .12996 .56 6 .09421 .12422 .00992 .12564 .01042 .12710 .00957 .12852 .11393 .13001 .56 7 .00429 .12422 .00992 .12566 .01042 .12711 .10953 .12857 .11407 .13004 .56 9 .09446 .12430 .00995 .12576 .10433 .12912 .10940 .12856 .11414 .13131 .13131 .13131 .10406 .12853 .11414 .13100 .12413 .10904 .12854 .11414 .13131 .13131 .13131 .1314 .13141 .13141 .13144 .13144 .13144 .13144 .13144 .13144 .13144							1					60
3 .09395 .12415 .09897 .12569 .01094 .1218 .09940 .1218 .09940 .1218 .09940 .1218 .09940 .1236 .01012 .12709 .10859 .12355 .11399 .13001 .256 .00421 .12420 .09914 .12567 .1040 .12712 .10915 .12855 .11399 .13001 .366 .00421 .12425 .09930 .12567 .10402 .12714 .10915 .12855 .11399 .13001 .366 4 2 .00493 .12425 .09930 .12560 .1045 .12714 .10923 .12860 .11415 .13006 .69 9 .00446 .12430 .09947 .12376 .10455 .12719 .10948 .12257 .11414 .1310 .13114 .1310 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114 .13114<												59
Texas												
5 .09412 12429 .09944 .12566 .10412 .12709 .10907 .12857 .11040 .12714 .10915 .12875 .11040 .12714 .10923 .12860 .11415 .13004 .54 + 2' .09437 .12475 .90930 .12569 .10437 .12714 .10923 .12860 .11415 .13006 .52 10 .09454 .12432 .09955 .12576 .10453 .12211 .10940 .12867 .11418 .13011 .13 .1311				1								-
6						.10412	.12709	.10907				55
+ 2' 0.09446 12427 0.09939 .72572 0.10437 12111 9.10332 12862 0.11423 13000 29 0.09446 12432 0.09955 .12576 1.0455 1.2121 1.0946 1.2865 1.1431 1.3014 37 17 0.09462 12434 0.09944 .12579 1.0462 1.2724 1.0956 .12870 1.1444 1.3014 37 1.1437 0.09479 .12337 9.09472 .12537 0.1044 1.0956 .12870 1.1444 1.3014 37 1.1437 0.09479 .12338 0.09800 .12534 1.0146 .12729 1.0956 .12872 0.11446 .13014 37 1.1437 0.09488 .12442 .09889 .12538 1.0148 .12723 .10973 .12874 1.1464 .13024 4.1454 .13024												54
9 .09454 12439 .09947 .12574 .10455 .12719 .10948 .12867 .11431 .13014 .56 17 .09454 .12434 .09964 .12579 .10462 .12724 .10956 .12870 .11448 .13014 .59 4 3 .09471 .12437 .00950 .12581 .10470 .12229 .10973 .12872 .11448 .13014 .49 14 .09483 .12442 .00980 .12364 .10478 .12229 .10973 .12871 .11474 .13023 .48 15 .09496 .12444 .00997 .12388 .10495 .12331 .10989 .12871 .11473 .13023 .48 17 .00531 .12449 .10005 .12391 .10505 .12331 .10404 .12887 .11405 .13023 .49 18 .00521 .12451 .10022 .12386 .10519 .12741 .10144 .12887					1					1		53
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$												
11												50
## 0.9479 1.2343 0.9980 1.2584 1.0478 1.2279 1.0973 1.2874 1.1464 1.3021 47 75 0.9488 1.2444 0.09997 1.2588 1.0495 1.2331 1.0987 1.2877 1.1460 1.3026 44 7 0.9513 1.2449 1.0001 1.2593 1.0611 1.2238 1.1006 1.2884 1.14197 1.3038 48 19 0.9529 1.2435 1.0022 1.2586 1.0519 1.2741 1.1014 1.2887 1.1505 1.3038 44 7 0.99529 1.2435 1.0002 1.2508 1.0258 1.2748 1.1014 1.2887 1.1505 1.3038 44 7 9.09538 1.2456 1.0003 1.2506 1.0558 1.2748 1.1004 1.2899 1.1521 1.3038 44 2 9.0953 1.2466 1.0005 1.2605 1.0553 1.2748 1.1047 1.2589 1.1541 1.3048 3	11						.12724	.10956	.12870	.11448	.13016	49
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$												48
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												47
+ 4' 9,09504 .12446 9,10005 12591 9,10508 12726 9,10997 12882 9,11489 13031 48 17 00513 12449 10014 12593 10511 12728 11006 12884 11497 13031 48 9 0.9529 .12454 10000 12588 10528 .12743 11014 12887 .11505 13033 48 + 5' 9.09538 12456 9.10039 12600 9.10536 12746 9.1030 12891 9.11521 13038 24 22 0.9555 12461 10055 12603 10564 12730 11047 12894 11538 13043 38 23 0.9563 12468 10080 12613 10561 12735 11067 12899 11546 13043 38 26 0.9580 12468 10080 12613 10586 12760 11047 12994 11562 13049												
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$												44
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	17	.09513	.12449	.10014	.12593	.10511	.12738	.11006	.12884	.11497	.13031	43
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	18	.09521		.10022	.12596	.10519	.12741	.11014		.11505	.13033	42
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												41
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	23	.09563	.12463	.10064	.12608	.10561	.12753	.11055	.12899	.11546	.13045	37
26 .09588 .12470 .10088 .12615 .10586 .12760 .11079 .12906 .11578 .13053 3.2 + 7' 9.09605 .12473 9.0105 .12620 9.10602 .12765 9.11086 .12911 9.11586 .13055 3.3 29 .09613 .12478 .10113 .12622 .10610 .12767 .11104 .12913 .11595 .13060 3.3 30 .09630 .12482 .10120 .12627 .10619 .12770 .11112 .12916 .11603 .13063 3.6 31 .09630 .12487 .10147 .12632 .10643 .12777 .11119 .12921 .11611 .13067 22 33 .09663 .12497 .10147 .12632 .10663 .12775 .11119 .12921 .11617 .13070 23 34 .09655 .12490 .10155 .12634 .10652 .12780 .11145 .12926 .11627<												36
27												-
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
29			.12475		.12620	9.10602						_
30	29	.09613	.12478	.10113	.12622	.10610	.12767	.11104	.12913	.11595	.13060	31
+ 8' 9.09638 .12485 9.10138 .12629 9.10635 .1277 9.11129 .12921 9.11619 .13067 28 33' .09647 .12487 .10147 .12632 .10643 .12777 .11137 .12923 .11627 .13070 23 34' .09655 .12490 .10163 .12637 .10660 .12782 .11145 .12928 .11643 .13072 24 35' .09663 .12494 .10160 .12639 .10660 .12782 .11133 .12928 .11643 .13075 24 37' .09680 .12494 .10172 .12639 .10666 .12787 .11170 .12933 .11660 .13087 24 38' .09687 .12504 .10205 .12644 .10685 .12789 .11170 .12933 .11668 .13082 24 40' .09705 .12504 .10205 .12649 .10701 .12794 .9.1114 .2940 .1308			.12480							.11603	.13063	
33 .09647 .12487 .10147 .12632 .10643 .12777 .11137 .12923 .11667 .13970 25 34 .09655 .12490 .10155 .12634 .10652 .12780 .11145 .12926 .11633 .13072 23 50 .09680 .12494 .10172 .12639 .10668 .12784 .111161 .12930 .11652 .13077 24 38 .09688 .12499 .10188 .12644 .10665 .12789 .11178 .12935 .11660 .13080 22 39 .09680 .12499 .10188 .12644 .10685 .12789 .11178 .12935 .11660 .13082 22 49 .099705 .12504 .10205 .12649 .10701 .12794 .11194 .12940 .11684 .13087 24 40 .09731 .12504 .10205 .12651 .10709 .12799 .112194 .12940 .11694										~		
34 .09655 .12492 .10155 .12634 .10652 .12782 .11145 .12926 .11635 .13072 26 35 .09663 .12492 .10163 .12637 .10660 .12784 .11153 .12928 .11643 .13075 22 37 .09680 .12494 .10172 .12639 .10668 .12784 .9.1161 .12930 .11660 .13087 28 38 .09688 .12499 .10188 .12644 .10685 .12789 .11170 .12935 .11660 .13082 22 39 .09697 .12502 .10196 .12646 .10693 .12792 .11186 .12935 .11668 .13082 24 .09713 .12504 .10205 .12649 .10701 .12794 .11186 .12935 .11664 .13087 24 40 .09722 .12509 .10221 .12654 .10718 .12799 .11211 .12945 .11700 .13092												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	35	.09663	.12492	.10163	.12637	.10660	.12782	.11153	.12928	.11643	.13075	25
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
41 .09713 .12506 .10213 .12654 .10718 .12797 .11202 .12945 .11692 .13090 .13 42 .09722 .12509 .10221 .12654 .10718 .12799 .11211 .12945 .11700 .13092 .12654 49 .09730 .12514 .910238 .12658 .910734 .12804 .11219 .12948 .11709 .13095 .1266 45 .09739 .12516 .10246 .12661 .10742 .12806 .11235 .12952 .11725 .13099 .1244 46 .09755 .12519 .10255 .12663 .10751 .12809 .11243 .12955 .11733 .13102 .144 47 .09764 .12521 .10263 .12668 9.10767 .12811 .11252 .12957 .11741 .13102 .144 .10775 .12814 9.11260 .12962 .11757 .13109 .12528 .10288 .12673 .10775			.12504	9.10205	.12649	9.10701	.12794	9.11194		-		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	41	.09713	.12506	.10213	.12651	.10709	.12797	.11202	.12943	.11692	.13090	19
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$										-1		_
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	46	.09755	.12519	.10255	.12663	.10751	.12809	.11243	.12955	.11733	.13102	14
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				-							.13104	13
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				9.10271	.12668			9.11260	.12960	9.11749		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				10288	12673			11276				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1											
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	+ 13'	9.09805	.12533	9.10304	.12678	9.10800	.12823	9.11292	.12970	9.11782	.13116	8
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	53	.09814	.12536	.10313	.12680	.10808	.12826	.11301	.12972	.11790	.13119	7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$.11798	.13121	
57 .09847 .12545 .10346 .12690 .10841 .12836 .11333 .12982 .11822 .13129 .13129 .12552 .12547 .10354 .12692 .10849 .12836 .11333 .12984 .11821 .13131 .13131 .13131 .13131 .13131 .13131 .13134					-1							
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$												
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	58	.09856	.12547	.10354	.12692	.10849	.12838	.11342	.12984	.11831	.13131	2
												1
21h 14m 21h 13m 21h 12m 21h 11m 21h 10m	+ 15'	9.09872	.12552	9.10371	.12697	9.10866	.12843	9.11358	.12989	9.11847	.13136	(
** 17		21h	1 1 4 m	21h	13m	211	12m	21h	11m	21h	107	
			*7		10		1~		11		10	_

	2h 50m	42° 30′	0 h 51m	42° 45′	0 h 50m	43° 0′	9h 58m	43° 15′	0h 5/m	43° 30′	1
s	Log. Hav.					,	l	Nat. Hav.		Nat. Hav.	s
0	9.11847	.13136	9.12332	.13284	9.12815	.13432	9.13295	.13581	9.13771	.13731	60
1	.11855	.13139	.12341	.13286	.12823	.13435	.13303	.13584	.13779	.13734	59
2	.11863	.13141.	.12349	.13289	.12831	.13437	.13311	.13586	.13787	.13736	58
3	.11871	.13143	.12357	.13291	.12839	.13440	.13319	.13589	.13795	.13739	57
$+\frac{1}{5}$	9.11879 .11887	.13146 .13148	$9.12365 \\ .12373$.13294 .13296	$9.12847 \\ .12855$.13442 .13445	$9.13326 \\ .13334$.13591 .13594	9.13803 .13811	.13741	56 55
6	.11895	.13151	.12381	.13299	.12863	.13447	.13342	.13596	.13819	.13746	54
7	.11904	.13153	.12389	.13301	.12871	.13450	.13350	.13599	13827	.13749	53
+ 2'	$9.11912 \\ .11920$.13156 .13158	$9.12397 \\ .12405$.13304 .13306	$9.12879 \\ .12887$.13452	9.13358 $.13366$.13601 .13604	9.13834	.13751	52
10	.11928	.13161	.12403	.13309	.12895	.13455	.13374	.13607	.13842	.13754 .13756	51 50
11	.11936	.13163	.12421	.13311	.12903	.13460	.13382	.13609	.13858	.13759	49
+ 3′	9.11944	.13166	9.12429	.13314	9.12911	.13462	9.13390	.13611	9.13866	.13761	48
13 14	.11952 $.11960$.13168 .13171	.12437	.13316 .13318	.12919 $.12927$.13465	.13398	.13614 .13616	.13874 .13882	.13764 .13766	47
15	.11968	.13173	.12453	.13321	.12935	.13470	.13414	.13619	.13890	.13769	46 45
+ 4'	9.11977	.13175	9.12461	.13323	9.12943	.13472	9.13422	.13621	9.13898	.13771	44
17	.11985	.13178	.12470	.13326	.12951	.13474	.13430	.13624	.13906	.13774	43
18 19	.11993 .12001	.13180 .13183	.12478 .12486	.13328	.12959 $.12967$.13477 .13479	.13438 .13446	.13626 .13629	.13913 .13921	.13776 .13779	42 41
$+\frac{15}{5'}$	9.12001	.13185	$\frac{.12480}{9.12494}$.13333	$\frac{.12967}{9.12975}$.13482	9.13454	.13631	$\frac{.13921}{9.13929}$.13781	$\frac{41}{40}$
21	.12017	.13188	.12502	.13336	.12983	.13484	.13462	.13634	.13937	.13784	39
22	.12025	.13190	.12510	.13338	.12991	.13487	.13470	.13636	.13945	.13786	38
$\frac{23}{+6'}$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$.13193	.12518	.13341	$\frac{.12999}{0.12007}$.13489	.13478	.13639	.13953	.13789	37
+ 6' 25	.12041	.13195	$9.12526 \\ .12534$.13343	9.13007 .13015	.13492 .13494	$9.13486 \\ .13494$.13641 .13644	$9.13961 \\ .13969$.13791	36 35
26	.12058	.13200	.12542	.13348	.13023	.13497	.13501	.13646	.13977	.13796	34
27	.12066	.13203	.12550	.13351	.13031	.13499	.13509	.13649	.13985	.13799	33
+ 7'	$9.12074 \\ .12082$.13205	$9.12558 \\ .12566$.13353 .13356	9.13039 .13047	.13502 .13504	9.13517	.13651	9.13992	.13801	32
30	.12092	.13210	.12574	.13358	.13055	.13504	.13525	.13654 .13656	.14000 .14008	.13804	31 30
31	.12098	.13212	.12582	.13360	.13063	.13509	.13541	.13659	.14016	.13809	29
+ 8'	9.12106	.13215	9.12590	.13363	9.13071	.13512	9.13549	.13661	9.14024	.13811	28
33 34	.12114	.13217 .13220	.12598 $.12606$.13365 .13368	.13079	.13514	.13557 .13565	.13664 .1366 6	.14032 $.14040$.13814	27 26
35	.12130	.13222	.12614	.13370	.13095	.13519	.13573	.13669	.14048	.13819	25
+ 9′	9.12139	.13225	9.12622	.13373	9.13103	.13522	9.13581	.13671	9.14056	.13822	24
37 38	.12147 .12155	.13227 .13230	.12630 .12638	.13375 .13378	.13111	.13524	.13589	.13674	.14063	.13824	23
39	.12163	.13232	.12647	.13380	.13119 .13127	.13527 .13529	.13597 $.13605$.13676 .13679	.14071 .14079	.13827 .13829	22 21
+ 10'	9.12171	.13235	9.12655	.13383	9.13135	.13532	9.13613	.13681	9.14087	.13832	20
41	.12179	.13237	.12663	.13385	.13143	.13534	.13621	.13684	.14095	.13834	19
42 43	.12187	.13239	.12671	.13388 .13390	.13151 .13159	.13537 .13539	.13628 .13636	.13686 .13689	.14103 .14111	.13837 .13839	18 17
+ 11'	9.12203	.13244	9.12687	.13393	9.13167	.13542	$\frac{.13636}{9.13644}$.13691	9.14111	.13842	16
45	.12211	.13247	.12695	.13395	.13175	.13544	.13652	.13694	.14127	.13844	15
46 47	.12219	.13249 .13252	.12703	.13398	.13183	.13547	.13660	.13696	.14134	.13847	14
+ 12'	9.12236	.13254	$\frac{.12711}{9.12719}$.13400	$\frac{.13191}{9.13199}$.13549	$\frac{.13668}{9.13676}$.13699 .13701	$\frac{.14142}{9.14150}$.13849	$\frac{13}{12}$
49	.12244	.13257	.12727	.13405	.13207	.13554	.13684	.13704	.14158	.13854	12 11
50	.12252	.13259	.12735	.13408	.13215	.13557	.13692	.13706	.14166	.13857	10
$\frac{51}{+13'}$	$\begin{array}{c c} .12260 \\ \hline 9.12268 \end{array}$.13262	.12743	.13410	.13223	.13559	.13700	.13709	.14174	.13859	9
53	$0.12208 \\ \cdot .12276$.13264 .13267	$9.12751 \\ .12759$.13412	$oxed{9.13231} \ .13239$.13562 .13564	$9.13708 \\ .13716$.13711 .13714	$9.14182 \\ .14190$.13862 .13864	8
54	.12284	.13269	.12767	.13417	.13247	.13567	.13724	.13716	.14197	.13867	6
55	.12292	.13272	.12775	.13420	.13255	.13569	.13732	.13719	.14205	.13869	5
+ 14 ′ 57	9.12300 .12308	.13274 .13276	$9.12783 \\ .12791$.13422	$9.13263 \\ .13271$.13571	9.13739	.13721	9.14213	.13872	4
58	.12316	.13279	.12799	.13427	.13271	.13574 .13576	.13747	.13724	.14221 $.14229$.13874 .13877	3
59	.12324	.13281	.12807	.13430	.13287	.13579	.13763	.13729	.14237	.13879	1
+ 15′	9.12332	.13284	9.12815	.13432	9.13295	.13581	9.13771	.13731	9.14245	.13882	0
	21h	9m	21h	8m	21 h	γm	21h	6^m	21h	5m	1000

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TABLE 45.

				440 - 4	2h 57m 44° 15'		2h 58m 44° 30′		2h 59m 44° 45′		_
		43° 45′		44° 0′							
S	Log. Hav.	Nat. Hav.	S								
0	9.14245	.13882	9.14715	.14033	9.15183	.14185	9.15647	.14337	9.16109	.14491	60
1 2	.14252 $.14260$.13884	14723 14731	.14035 .14038	.15190 .15198	.14187 .14190	.15655	.14340 .14343	.16117 $.16124$.14493 .14496	59 58
3	.14268	.13889	.14739	.14041	.15206	.14192	.15670	.14345	.16132	.14498	57
+ 1'	9.14276	.13892	9.14746	.14043	9.15214	.14195	9.15678	.14348	9.16140	.14501	56
5 6	.14284 $.14292$.13894 .13897	.14754 $.14762$.14046 .14048	.15221 $.15229$.14198 .14200	.15686 $.15694$.14350 .14353	.16147 $.16155$.14504 .14506	55 54
7	.14300	.13899	.14770	.14051	.15237	.14203	.15701	.14355	.16163	.14509	53
+ 2'	9.14307	.13902	9.14778	.14053	9.15245	.14205	9.15709	.14358	9.16170	.14511	52
9 10	.14315 .14323	.13904	.14785	.14056 .14058	.15253 $.15260$.14208 .14210	.15717 .15724	.14360 .14363	.16178 .16186	.14514	51 50
11	.14331	.13909	.14801	.14061	.15268	.14213	.15732	.14366	.16193	.14519	49
+ 3'	9.14339	.13912	9.14809	.14063	9.15276	.14215	9.15740	.14368	9.16201	.14521	48
13 14	.14347 $.14355$.13914	.14817 $.14824$.14066 .14068	.15284 $.15291$.14218 .14220	.15748 .15755	.14371	.16209 $.16216$.14524	47 46
15	.14362	.13920	.14832	.14071	.15299	.14223	.15763	.14376	.16224	.14529	45
+ 4'	9.14370	.13922	9.14840	.14073	9.15307	.14226	9.15771	.14378	9.16232	.14532	44
17 18	.14378 .14386	.13925	.14848 $.14856$.14076	.15315 $.15322$.14228 .14231	.15778 .15786	.14381 .14383	.16239 $.16247$.14534 .14537	43 42
19	.14394	.13930	.14863	.14081	.15322	.14233	.15794	.14386	.16255	.14539	41
+ 5′	9.14402	.13932	9.14871	.14084	9.15338	.14236	9.15802	.14388	9.16262	.14542	40
21 22	.14410	.13935 .13937	.14879 .14887	.14086 .14089	.15346	.14238	.15809 .15817	.14391 .14394	.16270 $.16278$.14545	39 38
23	.14425	.13940	.14895	.14091	.15361	.14243	.15825	.14396	.16285	.14550	37
+ 6'	9.14433	.13942	9.14902	.14094	9.15369	.14246	9.15832	.14399	9.16293	.14552	36
25 26	.14441	.13945	.14910 $.14918$.14096 .14099	.15377 .15384	.14248 .14251	.15840 .15848	.14401	.16301	.14555	35 34
27	.14457	.13950	.14916	.14101	.15392	.14253	.15855	.14406	.16316	.14560	33
+ 7'	9.14465	.13952	9.14934	.14104	9.15400	.14256	9.15863	.14409	9.16324	.14562	32
29 30	.14472 $.14480$.13955	.14941	.14106	.15408	.14259	.15871	.14411	.16331	.14565	31 30
31	.14488	.13960	.14949 $.14957$.14109	.15415 .15423	.14261	.15879 .15886	.14414	.16339	.14568 .14570	29
+ 8'	9.14496	.13962	9.14965	.14114	9.15431	.14266	9.15894	.14419	9.16354	.14573	28
33	.14504	.13965	.14973	.14116	.15439	.14269	.15902	.14422	.16362	.14575	27
34 35	.14512 $.14519$.13967 .13970	.14980 .14988	.14119	.15446 $.15454$.14271	.15909	.14424	.16369	.14578 .14580	26 25
+ 9'	9.14527	.13972	9.14996	.14124	9.15462	.14276	9.15925	.14429	9.16385	.14583	24
37	.14535	.13975	.15004	.14127	.15470	.14279	.15932	.14432	.16392	.14586	23
38 39	.14543	.13977 .13980	.15012 .15019	.14129	.15477 $.15485$.14281 .14284	.15940	.14434	.16400 .16408	.14588 .14591	22 21
+ 10'	9.14559	.13983	9.15027	.14134	9.15493	.14287	9.15955	.14440	9.16415	.14593	20
41	.14566	.13985	.15035	.14137	.15500	.14289	.15963	.14442	.16423	.14596	19
42 43	.14574 $.14582$.13988 .13990	.15043	.14139	.15508 .15516	.14292 .14294	.15971 .15978	.14445	.16431	.14598 .14601	18 17
+ 11'	9.14590	.13993	9.15058	.14144	9.15524	.14297	9.15986	.14450	9.16446	.14604	16
45 .	.14598	.13995	.15066	.14147	.15531	.14299	.15994	.14452	.16453	.14606	15
46 47	.14606	.13998 .14000	.15074 $.15082$.14149	.15539	.14302	.16002 .16009	.14455	.16461 $.16469$.14609 .14611	14 13
+ 12'	9.14621	.14003	9.15089	.14154	9.15555	.14307	9.16017	.14460	9.16476	.14614	12
49	.14629	.14005	.15097	.14157	.15562	.14309	.16025	.14463	.16484		11
50 51	.14637 $.14645$.14008 .14010	.15105 .15113	.14160 .14162	.15570 $.15578$.14312	.16032 .16040	.14465 .14468	.16492 $.16499$.14619 .14622	10 9
+ 13'	9.14653	.14013	9.15120	.14165	9.15585	.14317	9.16048	.14470	9.16507	.14624	8
53	.14660	.14015	.15128	.14167	.15593	.14320	.16055	.14473	.16515	14627	7
54 55	.14668 $.14676$.14018 .14020	.15136 .15144	.14170 .14172	.15601 .15609	.14322 .14325	.16063 $.16071$.14475	.16522 $.16530$.14629 .14632	6 5
+ 14'	9.14684	.14023	9.15152	.14175	9.15616	.14327	9.16078	.14480	9.16537	.14634	4
57	.14692	.14025	.15159	.14177	.15624	.14330	.16086	.14483	.16545	.14637	3
58 59	.14699 $.14707$.14028 .14030	.15167 .15175	.14180	.15632	.14332	.16094	.14486 .14488	.16553	.14639 .14642	2
+ 15'	9.14715	.14033	9.15183	.14185	9.15647	.14337	9.16109	.14491	9.16568	.14645	0
				3m			911	1m	91h	Om	
	21"	7	21"	J	21"	~		1	21.	J	<u> </u>
					~						

TABLE 45.

3h 0m 45° 0' 3h 1m 45° 15' 3h 2m 45° 30' 3h 3m 45° 43' 3h 4m 46° 0'											
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.				Nat. Hav.			s
0	9.16568	.14645	9.17024	.14799	9.17477	.14955 .14957	9.17928	.15110 .15113	9.18376	.15267 .15270	60 59
' 1 2	.16576	.14647 .14650	.17032 .17039	.14802 .14804	.17485 .17492	.14960	.17935	.15116	.18383 .18390	.15272	58
3	.16591	.14652	.17047	.14807	.17500	.14962	.17950	.15118	.18398	.15275	57
+ 1'	9.16598	.14655	9.17054	.14810	9.17507	.14965	9.17958	.15121	9.18405	.15278	56
5	.16606	.14658	.17062 .17069	.14812 .14815	.17515 $.17522$.14968 .14970	17965 17973	.15123 .15126	.18413	.15280 .15283	55 54
6 7	.16614 $.16621$.14660	.17003	.14817	.17530	.14973	.17980	.15129	.18428	.15285	53
+ 2'	9.16629	.14665	9.17085	.14820	9.17538	.14975	9.17988	.15131	9.18435	.15288	52
9 10	.16637 .16644	.14668 .14670	.17092 .17100	.14822 .14825	.17545 .17553	.14978 .14981	.17995 .18003	.15134	.18443	.15291 .15293	51 50
11	.16652	.14673	.17107	.14828	.17560	.14983	.18010	.15139	.18457	.15296	49
+ 3'	9.16659	.14676	9.17115	.14830	9.17568	.14986	9.18018	.15142	9.18465	.15298	48
13	.16667	.14678	.17122	.14833	.17575	.14988	.18025	.15144	.18472 .18480	.15301 .15304	47 46
14 15	.16675 $.16682$.14681 .14683	.17130 .17138	.14835	.17583 .17590	.14991	.18033 .18040	.15150	.18487	.15304	45
+ 4'	9.16690	.14686	9.17145	.14841	9.17598	.14996	9.18048	.15152	9.18495	.15309	44
17	.16697	.14688	.17153	.14843	.17605	.14999	.18055	.15155	.18502	.15312	43
18 19	.16705 $.16713$.14691 .14693	.17160 .17168	.14846	.17613 $.17620$.15001	.18062 .18070	.15157	.18509 .18517	.15314	42 41
$\frac{15}{+5'}$	$\frac{.10713}{9.16720}$.14696	9.17175	.14851	9.17628	.15006	9.18077	.15163	9.18524	.15319	40
21	.16728	.14699	.17183	.14853	.17635	.15009	.18085	.15165	.18532	.15322	39
22	.16735	.14701	.17191	.14856	.17643	.15012	.18092	.15168	.18539	.15325	38
$\frac{23}{+6'}$	$\frac{.16743}{9.16751}$.14704	$\frac{.17198}{9.17206}$.14859	$\frac{.17650}{9.17658}$.15014	0.18100 0.18107	.15170	$\frac{.18547}{9.18554}$.15327	$\frac{37}{36}$
+ 6'	.16758	.14709	.17213	.14864	.17665	.15019	.18115	.15176	.18561	.15333	35
26	.16766	.14712	.17221	.14866	.17673	.15022	.18122	.15178	.18569	.15335	34
27	.16774	.14714	.17228	.14869	.17680	.15025	.18130	.15181	.18576	.15337	33
+ 7'	$9.16781 \\ .16789$.14717	$9.17236 \\ .17243$.14872	$9.17688 \\ .17695$.15027	9.18137 .18145	.15183 .15186	9.18584 $.18591$.15340 .15343	32 31
30	.16796	.14722	.17251	.14877	.17703	.15032	.18152	.15189	.18598	.15346	30
31	.16804	.14724	.17259	.14879	.17710	.15035	.18160	.15191	.18606	.15348	29
+ 8'	$9.16812 \\ .16819$.14727 .14730	9.17266 $.17274$.14882	$9.17718 \\ .17725$.15038 .15040	$9.18167 \\ .18174$.15194	$9.18613 \\ .18621$.15351	28 27
33 34	.16827	.14732	.17281	.14887	.17733	.15043	.18182	.15199	.18628	.15356	26
35	.16834	.14735	.17289	.14890	.17740	.15045	.18189	.15202	.18636	.15359	25
+ 9'	9.16842	.14737	9.17296	.14892	9.17748	.15048	9.18197	.15204	9.18643	.15361	24
37 38	.16850 $.16857$.14740	.17304 .17311	.14895	.17755	.15051	.18204 .18212	.15207 .15210	.18650 .18658	.15364 .15367	23
39	.16865	.14745	.17319	.14900	.17770	.15056	.18219	.15212	.18665	.15369	21
+ 10'	9.16872	.14748	9.17327	.14903	9.17778	.15058	9.18227	.15215	9.18673	.15372	20
41.	.16880 .16887	.14750 .14753	.17334	.14905	.17785 .17793	.15061	.18234	.15217 .15220	.18680 .18687	.15374	19
42 43	.16895	.14755	.17342	.14910	.17800	.15066	.18242	.15222	.18695	.15379	17
+ 11'	9.16903	.14758	9.17357	.14913	9.17808	.15069	9.18256	.15225	9.18702	.15382	16
45	.16910		.17364		.17815	.15071	.18264	.15228	.18710	.15385	15
46 47	.16918 .16925	.14763	.17372	.14918	.17823 .17830	.15074	.18271	.15230 .15233	.18717 .18724	.15388	14
+ 12'	9.16933			.14923	9.17838	.15079	9.18286	.15236	9.18732	.15393	12
49	.16941	.14771	.17394	.14926	.17845	.15082	.18294	.15238	.18739	.15395	11
50	.16948				.17853	15084	.18301	.15241	.18747	.15398	10
$\frac{51}{+13'}$	$\frac{.16956}{9.16963}$.14931	$\frac{.17860}{9.17868}$.15087	.18309 9.18316	.15244	$\frac{.18754}{9.18762}$.15401	8
53	.16971	.14781	.17425	.14936	.17875	.15092	.18324	.15249	.18769	.15406	7
54	.16979 .16986				.17883	.15095	.18331	.15251	.18776	.15409	6
$\frac{55}{+14'}$	$\frac{.16986}{9.16994}$.14942	$\frac{.17890}{9.17898}$.15097	$\frac{.18338}{9.18346}$.15254	$\frac{.18784}{9.18791}$.15411	5
57	.17001				.17905	.15100	.18353	.15259	.18798	.15416	3
58	.17009	.14794	.17462	.14949	.17913	.15105	.18361	.15262	.18806	.15419	2
$\frac{59}{+15'}$	$\frac{.17016}{9.17024}$.14952	$\frac{.17920}{9.17928}$.15108	$\frac{.18368}{9.18376}$.15264	9.18813	.15422	$\frac{1}{0}$
T 19	ļ	1	-	1			 	1			
	207	i 59m	201	1 58m	20h	57m	20h	56m	20h	55m	

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TABLE 45.

	3h 5m	46° 15′	3h 6m	16° 30′	$3h \gamma m$	46° 45′	3h 8m	47° 0′	3h 9m	17° 15′	1
s	Log. Hav.	Nat. Hav.	s								
0	9.18821	.15424	9.19263	.15582	9.19703	.15741	9.20140	.15900	9.20574	.16060	60
1	.18828	.15427	.19270	.15585	.19710	.15743	.20147	.15993	.20582	.16063 .16065	59
2 3	.18835 .18843	.15430 .15432	.19278 .19285	.15588 .15590	.19717 $.19725$.15746	.20154	.15905 .15908	.20589 $.20596$.16068	58 57
+ 1'	9.18850	.15435	9.19292	.15593	9.19732	.15751	9.20169	.15911	9.20603	.16071	56
5	.18858	.15437	.19300	.15595	.19739	.15754	.20176	.15913	.20611	.16073	55
$\frac{6}{7}$.18865 $.18872$.15440 .15443	.19307 $.19315$.15598 .15601	.19747 $.19754$.15757	.20184	.15916	.20618 $.20625$.16076 .16079	54 53
+ 2'	9.18880	.15445	9.19322	.15603	$\frac{.13764}{9.19761}$.15762	9.20198	.15921	$\frac{.20625}{9.20632}$.16081	52
9	.18887	.15448	.19329	.15606	.19769	.15765	.20205	.15924	.20639	.16084	51
10	.18895	.15451	.19337	.15609	.19776	.15767	.20213	.15927	.20647	.16087 .16089	50
$\frac{11}{+3'}$	$\frac{.18902}{9.18909}$.15453	$\frac{.19344}{9.19351}$.15611	$\frac{.19783}{9.19790}$.15770	$\frac{.20220}{9.20227}$.15929	$\frac{.20654}{9.20661}$.16092	49 48
13	.18917	.15458	.19359	.15617	.19798	.15775	.20234	.15935	.20668	.16095	47
14	.18924	.15461	.19366	.15619	.19805	.15778	.20242	.15937	.20675	.16097	46
15	.18932	.15464	$\frac{.19373}{0.10391}$.15622	.19812	.15781	$\frac{.20249}{0.20256}$.15940	.20683	.16100	45
$+\frac{4'}{17}$	9.18939 18946	.15466 .15469	9.19381	.15625 .15627	$9.19820 \\ .19827$.15783 .15786	$9.20256 \\ .20263$.15943	9.20690 .20697	.16103 .16105	44 43
18	.18954	.15472	.19395	.15630	.19834	.15789	.20271	.15948	.20704	.16108	42
19	.18961	.15474	.19403	.15632	.19842	.15791	.20278	.15951	.20712	.16111	41
+ 5'	9.18968 $.18976$.15477	9.19410 $.19417$.15635 .15638	$9.19849 \\ .19856$.15794	$9.20285 \\ .20292$.15953 .15956	$9.20719 \\ .20726$.16113 .16116	40 39
22	.18983	.15482	.19425	.15640	.19863	.15799	.20292	.15959	.20720	.16119	38 38
23	.18991	.15485	.19432	.15643	.19871	.15802	.20307	.15961	.20740	.16121	37
+ 6'	9.18998	.15487	9.19439	.15646	9.19878	.15804	9.20314	.15964	9.20748	.16124 .16127	36
25 26	.19005	.15490 .15493	.19447 $.19454$.15648 .15651	.19885 $.19893$.15807	.20321	.15967 .15969	.20755 .20762	.16129	35 34
27	.19020	.15495	.19461	.15654	.19900	.15812	⁷ .20336	.15972	.20769	.16132	33
+ 7	9.19027	.15498	9.19469	.15656	9.19907	.15815	9.20343	.15975	9.20776	.16135	32
29 30	.19035 $.19042$.15501 .15503	.19476 .19483	.15659 .15662	.19914 $.19922$.15818 .15820	.20350 .20358	.15977	.20784	.16137 .16140	31 30
31	.19042	.15506	.19491	.15664	.19929	.15823	.20365	.15983	.20798	.16143	29
+ 8'	9.19057	.15509	9.19498	.15667	9.19936	.15826	9.20372	.15985	9.20805	.16146	28
33	.19064	.15511	.19505	.15670	.19944	.15828	.20379	.15988	.20812	.16148	27
34 35	.19072 .19079	.15514	.19513 .19520	.15672 .15675	.19951	.15831 .15834	.20386 .20394	.15991	.20820	.16151	26 25
+ 9'	9.19086	.15519	9.19527	.15677	9.19965	.15836	9.20401	.15996	9.20834	.16156	24
37	.19094	.15522	.19535	.15680	.19973	.15839	.20408	.15999	.20841	.16159	23
38 39	.19101 .19109	.15524	.19542 .19549	.15683 .15685	.19980 .19987	.15842	.20415	.16001	.20848 $.20856$.16162 .16164	22 21
+ 10'	9.19116	.15530	9.19557	.15688	9.19995	.15847	9.20430	.16007	9.20863	.16167	20
41	.19123	.15532	.19564	.15691	.20002	.15850	.20437	.16009	.20870	.16170	19
42	.19131	.15535	.19571	.15693 .15696	.20009	.15852	.20444	.16012	.20877	.16172 .16175	18 17
+ 11'	$\frac{.19138}{9.19145}$.15537 .15540	$\frac{.19579}{9.19586}$.15699	$\frac{.20016}{9.20024}$.15855	9.20452	.16015	$\frac{.20884}{9.20891}$.16178	$\frac{17}{16}$
45	.19153	.15543	.19593	.15701	.20031	.15860	.20466	.16020	.20899	.16180	15
46	.19160	.15545	.19600	.15704	.20038	.15863	.20473	.16023	.20906	.16183	14
$\frac{47}{+12'}$	$\frac{.19167}{9.19175}$.15548	$\frac{.19608}{9.19615}$.15706 .15709	$\frac{.20045}{9.20053}$.15866 .15868	$\frac{.20481}{9.20488}$.16025 .16028	$\frac{.20913}{9.20920}$.16186 .16188	$\frac{13}{12}$
49	.19182	.15553	.19622	.15712	.20060	.15871	.20495	.16031	.20927	.16191	11
50	.19190	.15556	.19630	.15714	.20067	.15874	.20502	.16033	.20935	.16194	10
$\frac{51}{+13'}$	$\frac{.19197}{9.19204}$.15559	$\frac{.19637}{9.19644}$.15717	$\frac{.20075}{9.20082}$.15876	$\frac{.20509}{9.20517}$.16036	$\frac{.20942}{9.20949}$.16196	$\frac{9}{8}$
+ 13 ′ 53	0.19204 0.19212	.15564	0.19644 0.19652	.15722	.20082	.15879 .15881	.20524	.16039 .16041	.20956	.16202	7
54	.19219	.15566	.19659	.15725	.20096	.15884	.20531	.16044	.20963	.16204	6
55	$\frac{.19226}{0.10224}$.15569	.19666	.15728	.20104	.15887	.20538	.16047	$\frac{.20971}{0.20078}$.16207	5
+ 14' 57	$9.19234 \\ .19241$.15572 .15574	9.19674 .19681	.15730 .15733	9.20111 $.20118$.15889 .15892	9.20546 $.20553$.16049 .16052	$9.20978 \\ .20985$.16210 .16212	4 3
58	.19248	.15577	.19688	.15736	.20125	.15895	.20560	.16055	.20992	.16215	2
59	.19256	.15580	.19696	.15738	.20133	.15898	.20567	.16057	.20999	.16218	1
+ 15'	9.19263	.15582	9.19703	.15741	9.20140	.15900	9.20574	.16060	9.21006	.16220	0
	20h 54m 20h 53m			20h 52m		20h	51m	20h	50m		
							20-01				

$ \begin{array}{c c c c c c c c c c c c c c c c c c c $						Travelsines,					_	
		3h 10m	47° 30′	3h 11m	47° 45′	3h 12m	48° 0′	3h 13m	48° 15′	3h 14m	48° 30′	
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		20h	49m	20h	48m	20h	47m	20h	46m	20h	45m	

	3h 15m	400 45/	3h 16m	40° 0/	3h 17m	400 15/	3h 18m	400 20/	3h 19m	400 45/	
				Nat. Hav.				Nat. Hav.			
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0 1	9.23128 $.23135$.17033 .17035	9.23545 $.23552$.17197 .17200	9.23960	.17362 .17365	9.24372	.17528 .17530	9.24782 .24789	.17694 .17697	60 59
2	.23142	.17038	.23559	.17203	.23974	.17368	.24386	.17533	.24796	17699	58
3	.23149	.17041	.23566	.17205	.23981	.17370	.24393	.17536	24803	.17702	57
+ 1′	9.23156	.17044	9.23573	.17208	9.23988	.17373	9.24400	.17539	9.24809	.17705	56
$\frac{5}{6}$.23163 .23170	.17046 .17049	.23580 .23587	.17211	.23994 $.24001$.17376 .17379	.24406 .24413	.17541	.24816 .24823	.17708 .17710	55 54
7	.23177	.17052	.23594	.17216	.24001	.17381	.24420	.17547	.24830	.17713	53
+ 2'	9.23184	.17055	9.23601	.17219	9.24015	.17384	9.24427	.17550	9.24837	.17716	52
9	.23191	.17057	.23608	.17222	.24022	.17387	.24434	.17552	.24843	.17719	51
10 11	.23198 $.23205$.17060 .17063	.23615 $.23622$.17225 .17227	.24029 .24036	.17390 .17392	.24441 .24448	.17555 .17558	.24850 $.24857$.17722	50 49
$\frac{11}{+3'}$	9.23212	.17066	9.23629	.17230	9.24043	.17395	9.24454	.17561	9.24864	.17727	48
13	.23219	.17068	.23635	.17233	.24050	.17398	.24461	.17563	.24871	.17730	47
14	.23226	.17071	.23642	.17235	.24056	.17401	.24468	.17566	.24877	.17733	46
15	.23233	.17074	.23649	.17238	.24063	.17403	.24475	.17569	.24884	.17735	45
$+\frac{4'}{17}$	$9.23240 \\ .23247$.17076 .17079	9.23656	.17241	$9.24070 \\ .24077$.17406 .17409	9.24482 .24489	.17572 .17575	$9.24891 \\ .24898$.17738	44 43
18	.23254	.17082	.23670	.17246	.24084	.17412	.24495	.17577	.24905	.17744	42
19	.23261	.17085	.23677	.17249	.24091	.17414	.24502	.17580	.24911	.17746	41
+ 5	9.23268	.17087	9.23684	.17252	9.24098	.17417	9.24509	.17583	9.24918	.17749	40
21 22	.23275 .23282	.17090 .17093	.23691	.17255	.24105 $.24111$.17420 .17423	.24516	.17586 .17588	.24925 $.24932$.17752 .17755	39
23	.23289	.17096	.23705	.17260	.24118	.17425	.24530	.17591	.24939	.17758	37
+ 6'	9.23295	.17098	9.23712	.17263	9.24125	.17428	9.24536	.17594	9.24945	.17760	36
25	.23302	.17101	.23718	.17266	.24132	.17431	.24543	.17597	.24952	.17763	35
26 27	.23309 .23316	.17104 .17107	.23725 .23732	.17268 .17271	.24139 .24146	.17434	.24550 $.24557$.17600 .17602	.24959 $.24966$.17766 .17769	34
+ 7'	9.23323	.17109	9.23739	.17274	$\frac{.21116}{9.24153}$.17439	9.24564	.17605	9.24973	.17772	32
29	.23330	.17112	.23746	.17277	.24160	.17442	.24571	.17608	.24979	.17774	31
30	.23337	.17115	.23753	.17279	.24166	.17445	.24577	.17611	.24986	.17777	30
$\frac{31}{+8'}$	$\frac{.23344}{9.23351}$.17117	$\frac{.23760}{9.23767}$.17282	24173 9.24180	.17447	$\frac{.24584}{9.24591}$.17613 .17616	$\frac{.24993}{9.25000}$.17780	29
33	.23358	.17123	.23774	.17288	.24180	.17450 .17453	.24598	.17619	.25007	.17785	28 27
34	.23365	.17126	.23781	.17290	.24194	.17456	.24605	.17622	.25013	.17788	26
35	.23372	.17128	.23788	.17293	.24201	.17458	.24612	.17624	.25020	.17791	25
+ 9' 37	9.23379 $.23386$.17131	9.23794 $.23801$.17296 .17299	$9.24208 \\ .24215$.17461 .17464	$9.24618 \\ .24625$.17627 .17630	9.25027 $.25034$.17794 .17797	24 23
38	.23393	.17137	.23808	.17301	.24221	.17467	.24632	.17633	.25034	.17799	22
39	.23400	.17139	.23815	.17304	.24228	.17470	.24639	.17636	.25047	.17802	21
+ 10′	9.23407	.17142	9.23822	.17307	9.24235	.17472	9.24646	.17638	9.25054	.17805	20
41 42	.23414 .23421	.17145	.23829 .23836	.17310 .17313	.24242 .24249	.17475	.24653	.17641	.25061 .25068	.17808 .17811	19 18
43	.23427	.17150	.23843	.17315	.24256	.17481	.24666	.17647	.25074	.17813	17
+ 11'	9.23434	.17153	9.23850	.17318	9.24263	.17483	9.24673	.17649	9.25081	.17816	16
45	.23441	.17156	.23857	.17321	.24269	.17486	.24680	.17652	.25088	.17819	15
46 47	.23448 .23455	.17159	.23863 .23870	.17323 .17326	.24276 .24283	.17489	.24687 .24694	.17655 .17658	.25095 $.25102$.17822	14 13
+ 12'	9.23462	.17164	9.23877	.17329	9.24290	.17494	9.24700	.17661	9.25102	.17827	12
49	.23469	.17167	.23884	.17332	.24297	.17497	.24707	.17663	.25115	.17830	11
50	.23476	.17170	.23891	.17335	.24304	.17599	.24714	.17666	.25122	.17833	10
51	.23483	.17172	.23898	.17337	.24311	.17503	.24721	.17669	.25129	.17836	$\frac{9}{2}$
+ 13' 53	9.23490 .23497	.17175 .17178	$9.23905 \\ .23912$.17340 .17343	$9.24317 \\ .24324$.17505 .17508	9.24728 .24734	.17672 .17674	9.25135 .25142	.17838 .17841	8
54	.23504	.17181	.23919	.17346	.24331	.17511	.24741	.17677	.25149	.17844	6
55	.23511	.17183	.23926	.17348	.24338	.17514	.24748	.17680	.25156	.17847	5
+ 14'	9.23518	.17186	9.23932	.17351	9.24345	.17517	9.24755	.17683	9.25163	.17849	4
57 58	.2352 5 .23532	.17189 .17192	.23939	.17354	.24352 .24359	.17519 .17522	.24762 $.24768$.17686 .17688	.25169 $.25176$.17852 .17855	3 2
59	.23538	.17194	.23953	.17359	.24365	.17525	.24775	.17691	.25183	.17858	1
+ 15′	9.23545	.17197	9.23960	.17362	9.24372	.17528	9.24782	.17694	9.25190	.17861	0
	20h	44m	20h	43m	20h	42m	20h	41m	20h	40m	
					<u> </u>						

					nes.						
	3h _, 20m	50° 0′	3h 21m	50° 15′	3h 22m	50° 30′	3h 23m	50° 45′	3h 24m	51° 0′	
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Iīav.	Log. Hav.	Nat. Hav.	S
0	9.25190	.17861	9.25595	.18028	9.25998	.18196	9.26398	.18365	9.26797	.18534	60
1	.25196	.17863	.25602	.18031	.26005	.18199	.26405	.18368	.26804	.18537	59
2	.25203 .25210	.17866 .17869	.25608 $.25615$.18034 .18036	.26011 $.26018$.18202 .18205	.26412 $.26418$.18370 .18373	$\begin{array}{c} .26810 \\ .26817 \end{array}$.18540	58 57
	$\frac{.25210}{9.25217}$.17872	9.25622	.18039	9.26025	.18207	$\frac{.20418}{9.26425}$.18376	9.26823	.18545	56
+ 1' 5	.25224	.17875	.25629	.18042	.26031	.18210	.26432	.18379	.26830	.18548	55
6	.25230	.17877	.25635	.18045	.26038	.18213	.26438	.18382	.26837	.18551	54
7	.25237	.17880	.25642	.18048	26045	.18216	.26445	.18384	.26843	.18554	53
+ 2'	9.25244	.17883	9.25649	.18050	9.26051	.18219	9.26452	.18387	9.26850	.18557	52
9	.25251	.17886	.25655	.18053	.26058	.18221	.26458	.18390	.26856	.18559	51
10 11	.25257 $.25264$.17888 .17891	.25662 .25669	.18056 .18059	.26065 $.26071$.18224	.26465 .26472	.18393 .18396	.26863 $.26870$.18562 .18565	50 49
+ 3'	9.25271	.17894	$\frac{.25635}{9.25676}$.18062	9.26078	.18230	9.26478	.18399	$\frac{0.26876}{9.26876}$.18568	48
13	.25278	.17897	.25682	.18064	.26085	.18233	.26485	.18401	.26883	.18571	47
14	.25284	.17900	.25689	.18067	.26091	.18235	.26492	.18404	.26890	.18574	46
15	.25291	.17902	.25696	.18070	.26098	.18238	.26498	.18407	.26896	.18576	45
+ 4'	9.25298	.17905	9.25703	.18073	9.26105	.18241	9.26505	.18410	9.26903	.18579	44
17	.25305	.17908	.25709 .25716	.18076 .18078	.26112 .26118	.18244	.26512 .26518	.18413	.26909 $.26916$.18582 .18585	43 42
18 19	.25311	.17911 .17914	.25723	.18078	.26118	.18247	.26518 .26525	.18418	.26923	.18588	42 41
+ 5'	9.25325	.17916	9.25729	.18084	$\frac{.20128}{9.26132}$.18252	$\frac{.26528}{9.26532}$.18421	9.26929	.18591	40
21	.25332	.17919	.25736	.18087	.26138	.18255	.26538	.18424	.26936	.18593	39
22	.25339	.17922	.25743	.18090	.26145	.18258	.26545	.18427	.26942	.18596	38
23	.25345	.17925	.25750	.18092	26152	.18261	26551	.18430	.26949	.18599	37
+ 6'	9.25352	.17928	9.25756	.18095	9.26158	.18263	9.26558	.18432	9.26956	.18602	36
25 26	.25359 .25366	.17930 .17933	.25763 .25770	.18098 .18101	.26165 $.26172$.18266 .18269	.26565 $.26571$.18435 .18438	.26962 .26969	.18605 .18608	35 34
$\tilde{27}$.25372	17936	.25776.	.18104	.26178	.18272	.26578	.18441	.26975	.18610	33
+ 7'	9.25379	.17939	9.25783	.18106	9.26185	.18275	9.26585	.18444	9.26982	.18613	32
29	.25386	.17941	.25790	.18109	.26192	.18277	.26591	.18446	.26989	.18616	31
30	.25393	.17944	.25797	.18112	.26198	.18280	.26598	.18449	.26995	.18619	30
31	.25399	.17947	.25803	.18115	.26205	.18283	.26605	.18452	.27002	.18622	29
+ 8'	$9.25406 \\ .25413$.17950 .17953	$9.25810 \\ .25817$.18118 .18120	$9.26212 \\ \cdot .26218$.18286 .18289	9.26611 $.26618$.18455 .18458	9.27008 $.27015$.18624 .18627	28 27
34	.25420	17955	.25823	.18123	.26225	.18292	.26625	.18461	.27022	.18630	26
35	.25426	.17958	.25830	.18126	.26232	.18294	.26631	.18463	.27028	.18633	25
+ 9'	9.25433	.17961	9.25837	.18129	9.26238	.18297	9.26638	.18466	9.27035	.18636	24
37	.25440	.17964	.25844	.18132	.26245	.18300	.26644	.18469	.27041	.18639	23
38 39	.25447 $.25453$.17967 .17969	.25850 $.25857$.18134	.26252 $.26259$.18303	.26651	.18472	.27048	.18641 .18644	22
+ 10'	9.25460	.17972	9.25864	.18140	9.26265	.18306	$\frac{.26658}{9.26664}$.18475	$\frac{.27033}{9.27061}$.18647	$\frac{21}{20}$
41	.25467	17975	.25870	.18143	.26272	.18311	.26671	.18489	.27068	.18650	19
42	.25474	.17978	.25877	.18146	.26279	.18314	.26678	.18483	.27074	.18653	18
43	.25480	.17981	.25884	.18148	.26285	18317	.26684	.18486	.27081	.18656	17
+ 11'	9.25487	.17983	9.25891	.18151	9.26292	.18320	9.26691	.18489	9.27088	.18658	16
45 46	.25494	.17986 .17989	.25897 $.25904$.18154 .18157	.26299 $.26305$.18323	.26697 $.26704$.18492 .18494	.27094 $.27101$.18661 .18664	15 14
40 47	.25507	.17992	.25911	.18160	.26312	.18328	.26711	.18497	.27101	.18667	13
+ 12'	9.25514	.17995		.18162			9.26717	.18500		.18670	12
49	.25521	.17997	.25924	.18165	.26325	.18334	.26724	.18503	.27121	.18673	11
50	.25528	.18000	.25931	.18168	.26332	.18337	.26731	.18506	.27127	.18675	10
51	.25534	.18003	.25938	.18171	.26339	.18339	.26737	.18509	.27134	.18678	$\frac{9}{2}$
+ 13′	$9.25541 \\ .25548$.18006 .18008	9.25944 $.25951$.18174 .18176	$9.26345 \\ .26352$.18342 .18345	9.26744 $.26751$.18511	9.27140 $.27147$.18681 .18684	8
54	.25544	.18011	.25958	.18179	.26359	.18348	.26757	.18517	.27154	.18687	6
5 5	.25561	.18014	.25964	.18182	.26365	.18351	.26764	.18520	.27160	.18690	5
+ 14'	9.25568	.18017	9.25971	.18185	9.26372	.18353	9.26770	.18523	9.27167	.18692	4
57	.25575	.18020	.25978	.18188	.26378	.18356	.26777	.18526	.27173	.18695	3
58 59	.25581	.18022 .18025	.25984 $.25991$.18190 .18193	.26385 .26392	.18359 .18362	.26784 .26790	.18528 .18531	.27180 .27186	.18698 .18701	2
+ 15'	9.25595	.18028	9.25998	.18196	9.26398	.18365	$\frac{.26790}{9.26797}$.18534	$\frac{.27180}{9.27193}$.18704	$\frac{1}{0}$
	20h	99111	20h	οδ'''•	20h	3/11	20h	2011	20h	00"	

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TABLE 45.

	ah arm	51° 15′	ah acm	51° 30′	ah arm	51° 45′	oh aom	52° 0′	eh aom	52° 15′	
s		Nat. Hav.		Nat. Hav.					l	Nat. Hav.	s
											_
0	9.27193 $.27200$.18704	9.27587 $.27594$.18874	9.27979 $.27985$.19045 .19048	9.28368	.19217 .19220	9.28756 $.28762$.19389 .19392	60 59
1 2	.27206	.18710	.27600	.18880	.27992	.19051	.28381	.19223	.28769	.19395	58
3	.27213	.18712	.27607	.18883	.27998	.19054	.28388	.19226	.28775	.19398	57
+ 1'	9.27219	.18715	9.27613	.18886	9.28005	.19057	9.28394	.19228	9.28782	.19401	56
5	.27226	.18718	.27620	.18888	.28011	.19060	.28401	.19231	.28788	.19404	55
6	.27233	.18721	.27626	.18891	.28018	.19062	.28407	.19234	.28794	.19406	54
7	.27239	.18724	.27633	.18894	.28024	.19065	.28414	.19237	.28801	.19409	53
+ 2′	9.27246	.18727	9.27639	.18897	9.28031	.19068	9.28420	.19240	9.28807	.19412	52
9 10	.27252 $.27259$.18729 .18732	.27646 $.27652$.18900 .18903	.28037 $.28044$.19071	.28427 .28433	.19243	.28814 .28820	.19415 .19418	51 50
11	.27265	.18735	.27659	.18906	.28050	.19077	.28440	.19248	.28827	.19421	49
$\frac{11}{+3'}$	9.27272	.18738	9.27666	.18908	9.28057	.19080	9.28446	.19251	9.28833	.19424	48
13	.27279	.18741	.27672	.18912	.28063	.19082	.28453	.19254	.28840	.19427	47
14	.27285	.18744	.27679	.18914	.28070	.19985	.28459	.19257	.28846	.19429	46
15	.27292	.18746	.27685	.18917	.28076	.19088	.28465	. 19260	.28852	.19432	45
+ 4'	9.27298	.18749	9.27692	.18920	9.28083	.19091	9.28472	.19263	9.28859	.19435	44
17	.27305	.18752	.27698	.18923	.28089	.19094	.28478	.19266	.28865	.19438	43
18 19	.27311 .27318	.18755 .18758	.27705 .27711	.18926 .18928	.28096 .28102	.19097	.28485 $.28491$.19269 .19271	.28872 .28878	.19441	42 41
$\frac{19}{+5'}$	9.27325	.18761	$\frac{.27711}{9.27718}$.18931	$\frac{.28102}{9.28109}$.19102	$\frac{.28491}{9.28498}$.19274	$\frac{.28878}{9.28885}$.19447	40
21	.27331	.18763	.27724	.18934	.28115	.19102	.28504	.19277	.28891	.19450	39
22	.27338	.18766	.27731	.18937	.28172	.19108	.28511	.19280	.28897	.19452	38
23	.27344	.18769	.27737	.18940	.28128	.19111	.28517	.19283	.28904	.19455	37
+ 6'	9.27351	.18772	9.27744	.18943	9.28135	.19114	9.28524	.19286	9.28910	.19458	36
25	.27357	.18775	.27751	.18945	.28141	.19117	.28530	.19289	.28917	.19461	35
26 27	.27364	.18778	.27757 .27764	.18948	.28148 $.28154$.19120 .19122	.28537	.19291	.28923	.19464	34
+ 7'	$\frac{.27371}{9.27377}$.18783	9.27770	.18954	9.28161	.19125	$\frac{.28543}{9.28549}$.19294	$\frac{.28930}{9.28936}$.19467	33
29	.27384	.18786	.27777	.18957	.28167	.19128	.28556	.19300	.28942	.19473	31
30	.27390	.18789	.27783	.18960	.28174	.19131	.28562	.19303	.28949	.19475	30
31	.27397	.18792	.27790	.18963	.28180	.19134	.28569	.19306	.28955	.19478	29
+ 8'	9.27403	.18795	9.27796	.18965	9.28187	.19137	9.28575	.19309	9.28962	.19481	28
33	.27410	.18797	.27803	.18968	.28193	.19140	.28582	.19311	.28968	.19484	27
34	.27417	.18800	.27809	.18971	.28200	.19142	.28588	.19314	.28974	.19487	26
35	.27423	.18803	$\frac{.27816}{9.27822}$.18974	.28206	.19145	.28595	.19317	.28981	19490	25
+ 9'	9.274 3 0 .27436	.18806	.27829	.18980	9.28213 $.28219$.19148 .19151	$9.28601 \\ .28608$.19320 .19323	9.28987 .28994	.19493 .19496	24 23
38	.27443	.18812	.27835	.18983	.28226	.19154	.28614	.19326	.29000	.19499	22
39	.27449	.18815	.27842	.18985	.28232	.19157	.28620	.19329	.29007	.19501	21
+ 10′	9.27456	.18817	9.27848	.18988	9.28239	.19160	9.28627	.19332	9.29013	.19504	20
41	.27463	.18820	.27855	.18991	.28245	.19163	.28633	.19335	.29019	.19507	19
42	.27469	.18823	.27861	.18994	.28252	.19165	.28640	.19337	.29026	.19510	18
43	.27476	.18826	.27868	.18997	.28258	.19168	.28646	.19340	.29032	.19513	17
+ 11' 45	$9.27482 \\ .27489$.18829	$9.27875 \\ .27881$.19000 .19002	$9.28265 \\ .28271$.19171	$9.28653 \\ .28659$.19343 .19346	9.29039 $.29045$.19516	16 15
46	.27495	.18834	.27888	.19005	.28278	.19177	.28666	.19349	.29043	.19522	14
47	.27502	.18837	.27894	.19008	.28284	.19180	.28672	.19352	.29058	.19524	13
+ 12'	9.27508		9.27901	.19011			9.28679		9.29064		12
49	.27515	.18843	.27907	.19014	.28297	.19185	.28685	.19358	.29071	.19530	11
50	.27522	.18846	.27914	.19017	.28304	.19188	.28691	.19360	.29078	.19533	10
51	.27528	.18849	.27920	.19020	.28310	.19191	.28698	.19363	.29084	.19536	9
$+\frac{13'}{53}$	$9.27535 \\ .27541$.18852 .18854	$9.27927 \\ .27933$.19022	9.28317 .28323	.19194 .19197	9.28704 .28711	.19366 .19369	$9.29090 \\ .29096$.19539	8 7
54	.27548	.18857	.27940	.19028	.28330	.19200	.28717	.19372	.29103	.19545	6
55	.27554		.27946	.19031	.28336	.19203	.28724	.19375	.29109	.19548	5
+ 14'	9.27561	.18863	9.27953	.19034	9.28342	.19205	9.28730	.19378	9.29116	.19550	4
57	.27567	.18866	.27959	.19037	.28349	.19208	.28737	.19381	.29122	.19553	3
58 50	.27574		.27966	.19040	.28355	.19211	.28743	.19383	.29128	.19556	2
59	.27580		$\frac{.27972}{0.27972}$.19042	.28362	.19214	.28749	.19386	.29135	.19559	1
+ 15'	9.27587	.18874	9.27979	.19045	9.28368	.19217	9.28756	.19389	9.29141	.19562	0
	20h	34m	20h	. 33m	20h	32m	20h	31m	20h	30m	
-			1						-		

					Haversi	nes.					
	3h 30m	52° 30′	3h 31m	52° 45′	3 h 32m	53° 0′	3 h 33m	53° 15′	3 h 34m	53° 39′	
s	Log. Hav.	Nat. Hav.	S								
0	9.29141	.19562	9.29524	.19735	9.29906	.19909	9.30285	.20084	9.30662	.20259 .20262	60 59
1 2	.29148 .29154	.19565 .19568	.29531 .29537	.19738 .19741	.29912 .29918	.19912 .19915	.30291 $.30207$.20087 .20090	.30668 .30674	.20265	58
3	.29160	.19571	.29543	.19744	.29925	.19918	.30303	.20093	.30680	.20268	57
+ 1'	9.29167	.19573	9.29550	.19747	9.29931	.19921	9.30310	.20095	9.30687	.20271	56
5	.29173	.19576	.29556	.19750	.29937	.19924	.30316	.20098	.30693	.20273	55
$\frac{6}{7}$.29180	.19579 .19582	.29563 .29569	.19753 .19756	.29943 $.29950$.19927 .19930	.30322	.20101 .20104	.30699 .30705	.20276	54 53
$\frac{1}{1+2^{\prime}}$	$\frac{.23180}{9.29192}$.19585	$\frac{.23505}{9.29575}$.19758	$\frac{.23356}{9.29956}$.19932	9.30335	.20107	$\frac{.30703}{9.30712}$.20282	52
9	.29199	.19588	.29582	.19761	.29962	.19935	.30341	.20110	.30718	.20285	51
10	.29205	.19591	.29588	.19764	.29969	.19938	.30348	.20113	.30724	.20288	50
11	.29212	.19594	$\frac{.29594}{9.29601}$.19767 .19770	$\frac{.29975}{9.29981}$.19941	$\frac{.30354}{9.30360}$.20116 .20119	$\frac{.30730}{9.30737}$.20291	49 48
$+ \frac{3}{13}$	9.29218 $.29224$.19 5 97	0.29601	.19773	.29988	.19947	.30366	.20113	.30743	.20297	47
14	.29231	.19602	.29614	.19776	.29994	.19950	.30373	.20125	.30749	.20300	46
15	.29237	.19605	29620	.19779	.30000	.19953	.30379	.20127	.30755	.20303	45
+ 4'	9.29244 $.29250$.19608 .19611	9.29626	.19782 .19785	9.30007 .30013	.19956 .19959	$9.30385 \\ .30392$.20130 .20133	9.30762	.20306 .20309	44 43
18	.29256	.19614	.29633	.19787	.30013	.19962	.30398	.20136	.30774	.20303	42
19	.29263	.19617	.29645	.19790	.30026	.19964	.30404	.20139	.30780	.20314	41
+ 5'	9.29269	.19620	9.29652	.19793	9.30032	.19967	9.30410	.20142	9.30787	.20317	40
21 22	.29276 $.29282$.19623 .19625	.29658 $.29664$.19796 .19799	.30038 .30045	.19970 .19973	.30417 .30423	.20145 .20148	.30793	.20320 .20323	39 38
23	.29288	.19628	.29671	.19802	.30051	.19976	.30429	.20151	.30805	.20326	37
+ 6'	9.29295	.19631	9.29677	.19805	9.30057	.19979	9.30436	.20151		.20329	36
25	.29301	.19634	.29683	.19808	.30064	.19982	.30442	.20157	.30818	.20332	35
26 27	.29307 .29314	.19637 .19640	.29690	.19811	.30070 .30076	.19985 .19988	.30448	.20160 .20162	.30824 .30830	.20335 .20338	34 33
+ 3'	9.29320	.19643	9.29703	.19816	9.30083	.19991	9.30461	.20165	9.30837	.20341	32
29	.29327	.19646	.29709	.19819	.30089	.19994	.30467	.20168	.30843	.20344	31
30	.29333	.19649	.29715	.19822	.30095	.19996	.30473	.20171	.30849	.20347	30
$\frac{31}{+8'}$.29339	.19651	$\frac{.29722}{9.29728}$.19825	$\frac{.30102}{9.30108}$.19999	.30480	.20174	$\frac{.30855}{9.30862}$.20350 .20352	29 28
+ 8'	$9.29346 \\ .29352$.19654 .19657	.29734	.19828 .19831	.30114	.20002 .20005	$9.30486 \\ .30492$.20177 .20180	.30868	.20355	27
34	.29359	.19660	.29741	.19834	.30121	.20008	.30498	.20183	.30874	.20358	26
35	.29365	.19663	.29747	.19837	.30127	.20011	.30505	.20186	.30880	.20361	25
+ 37	9.29371 $.29378$.19666 .19669	9.29753 $.29760$.19840 .19842	$9.30133 \\ .30139$.20014 .20017	9.30511 .30517	.20189 .20192	9.30887 $.30893$.20364 .20367	24 23
38	.29384	.19672	.29766	.19845	.30146	.20020	.30524	.20195	.30899	.20370	22
39	.29391	.19675	.29772	.19848	.30152	.20023	.30530	.20198	.30905	.20373	21
+ 10'	9.29397	.19677	9.29779	.19851	9.30158	.20026	9.30536	.20200	9.30912	.20376	20
41 42	.29403 .29410	.19680 .19683	.29785 •29791	.19854 .19857	.30165 .30171	.20028 .20031	.30542	.20203 .20206	.30918 $.30924$.20379 .20382	19 18
43	.29416	.19686	.29798	.19860	.30177	.20034	.30555	.20209	.30930	.20385	17
+ 11′	9.29422	.19689	9.29804	.19863	9.30184	.20037	9.30561	.20212	9.30937	.20388	16
45 46	.29429	.19692 .19695	.29810 .29817	.19866	.30190	.20040	.30567	.20215	.30943	.20391	15
40 47	.29435	.19693	.29817	.19869 .19872	.30196	.20043 .20046	.30574 $.30580$.20218 .20221	.30949	.20393 .20396	14 13
+ 12'	9.29448	.19701	9.29829	.19874		.20049	9.30586	.20224		.20399	12
49	.29454	.19703	.29836	.19877	.30215	.20052	.30593	.20227	.30968	.20402	11
50 51	.29461 $.29467$.19706 .19709	.29842 .29848	.19880 .19883	.30222 $.30228$.20055 .20058	.30599 .30605	.20230 .20233	30974 30980	.20405 .20408	$\begin{vmatrix} 10 \\ 9 \end{vmatrix}$
+ 13'	9.29473	.19712	$\frac{.23848}{9.29855}$.19886	$\frac{.30228}{9.30234}$.20060	9.30611	.20235	9.30987	.20403	8
5 3	.29480	.19715	.29861	.19889	.30240	.20063	.30618	.20238	.30993	.20414	7
54	.29486	.19718	.29867	.19892	.30247	.20066	.30624	.20241	.30999	.20417	6
+ 14'	$\frac{.29493}{9.29499}$.19721	$\frac{.29874}{9.29880}$.19895	$\frac{.30253}{9.30259}$.20069	30630	.20244	$\frac{.31005}{9.31012}$.20420	5
57	.29505	.19724	.29886	.19898	.30266	.20072	9.30636 .30643	.20247 .20250	.31012	.20423 .20426	3
5 8	.29512	.19730	.29893	.19903	.30272	.20078	.30649	.20253	.31024	.20429	2
59	.29518	.19732	.29899	.19906	.30278	.20081	.30655	.20256	.31030	.20432	1
+ 15'	9.29524	.19735	9.29906	.19909	9.30285	.20084	9.30662	.20259	9.31036	.20435	0
	20h	29m	20h	28m	20h	27m	20h	26m	20h	25m	

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TABLE 45.

	3h 35m	53° 45′	3h 36m	54° 0′	3h 37m	54° 15′	3h 38m	54° 30′	3h 39m	54° 45′	1
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.31036	.20435	9.31409	.20611	9.31780	.20788	9.32149	.20965	9.32516	.21143	60
1	.31043	.20437	.31416	.20614	.31786	.20790	.32155	.20968	.32522	.21146	59
2 3	.31049 .31055	.20440 .20443	.31422 .31428	.20617 .20620	.31793 .31799	.20793 .20796	.32161 $.32168$.20971	.32528 $.32534$.21149 .21152	58 57
+ 1'	9.31061	.20446	$\frac{.31120}{9.31434}$.20623	9.31805	.20799	9.32174	.20977	9.32541	.21155	56
5	.31068	.20449	.31440	.20626	.31811	.20802	.32180	.20980	.32547	.21158	55
6	.31074	.20452	.31447	.20629	.31817	.20805	.32186	.20983	.32553	.21161	54
$\frac{7}{+2'}$	$\frac{.31080}{9.31086}$	$\frac{.20455}{.20458}$	$\frac{.31453}{9.31459}$	$\frac{.20631}{.20634}$	$\frac{.31823}{9.31830}$.20808	$\frac{.32192}{9.32198}$	20986 20989	$\frac{.32559}{9.32565}$.21164	53 52
+ 92	.31093	.20461	.31465	.20637	.31836	.20814	.32204	.20991	.32571	.21169	51
10	.31099	.20464	.31471	.20640	.31842	.20817	.32210	.20994	.32577	.21172	50
11	.31105	.20467	.31478	.20643	.31848	.20820	.32217	.20997	.32583	.21175	49
$+ \frac{3'}{13}$	9.31111	.20470 .20473	$9.31484 \\ .31490$.20646 .20649	9.31854 $.31860$.20823 .20826	9.32223 $.32229$.21000 .21003	$9.32589 \\ .32595$.21178 .21181	48 47
14	.31124	.20476	.31496	.20652	.31867	.20829	.32235	.21006	.32601	.21184	46
15	.31130	.20479	.31502	.20655	.31873	.20832	.32241	.21009	.32608	.21187	45
+ 4'	9.31136	.20481	9.31508	.20658	9.31879	.20835	9.32247	.21012	9.32614	.21190	44
17 18	.31142	.20484	.31515	.20661	.31885	.20838	.32253	.21015 .21018	.32620	.21193 .21196	43
18 19	.31149 .31155	.20487 .20490	.31521 .31527	.20664 .20667	.31891	.20841	.32259	.21018	.32626 .32632	.21196	42 41
+ 5'	9.31161	.20493	9.31533	.20670	9.31903	.20847	9.32272	.21024	9.32638	.21202	40
21	.31167	.20496	.31539	.20673	.31910	.20850	.32278	.21027	.32644	.21205	39
22	.31173	.20499	.31546	.20675	.31916	.20852	.32284	.21030	.32650	.21208	38
$\frac{23}{+6'}$	$\frac{.31180}{9.31186}$.20502	$\frac{.31552}{9.31558}$.20678 .20681	31922 9.31928	.20855	$\frac{.32290}{9.32296}$	$\frac{.21033}{.21036}$	$\frac{.32656}{9.32662}$.21211	37 36
25	.31192	.20508	.31564	.20684	.31934	.20861	.32302	.21039	.32668	.21217	35
26	.31198	.20511	.31570	.20687	.31940	.20864	.32308	.21042	.32675	.21220	34
27	.31205	.20514	.31577	.20690	.31947	.20867	32315	.21045	.32681	.21223	33
+ 7'	9.31211	.20517	9.31583	.20693	9.31953	.20870	9.32321	.21048	9.32687	.21226	32
30	.31217 .31223	.20520 .20523	.31589 .31595	.20696 .20699	.31959 .31965	.26873 .20876	.32327	.21051	.32693	.21229	31 30
31	.31229	.20525	.31601	.20702	.31971	20879	.32339	.21057	.32705	.21235	29
+ 8'	9.31236	.20528	9.31607	.20705	9.31977	.20882	9.32345	.21060	9.32711	.21238	28
33	.31242	.20531	.31614	.20708	.31983	.20885	.32351	.21063	.32717	.21241	27
34 35	.31248 .31254	.20534	.31620 $.31626$.20711	.31990 .31996	.20888 .20891	.32357 $.32363$.21066 .21069	.32723 .32729	.21244	26 25
+ 9'	9.31260	.20540	9.31632	.20717	9.32002	.20894	9.32370	.21072	9.32735	.21250	24
37	.31267	.20543	.31638	.20720	.32008	.20897	.32376	.21074	.32741	.21253	23
38	.31273	.20546	.31644	.20723	.32014	.20900	.32382	.21077	.32748	.21256	22
$\frac{39}{+10'}$	$\frac{.31279}{9.31285}$	$\frac{.20549}{.20552}$	$\frac{.31651}{9.31657}$	$\frac{.20726}{.20729}$	32020 9.32026	.20903	$\frac{.32388}{9.32394}$.21080	$\frac{.32754}{9.32760}$.21259	$\frac{21}{20}$
41	.31291	.20555	.31663	.20731	.32033	.20909	.32400	.21086	.32766	.21265	19
42	.31298	.20558	.31669	.20734	.32039	.20912	.32406	.21089	.32772	.21268	18
43	.31304	.20561	.31675	.20737	.32045	.20915	.32412	.21092	.32778	.21271	17
+ 11'	9.31310 .31316	.20564 .20567	9.31682 .31688	.20740 .20743	9.32051 .32057	.20918 .20920	9.32418 $.32425$.21095 .21098	$9.32784 \\ .32790$.21274 .21277	16 15
45 46	.31323	.20570	.31694	.20746	.32063	.20923	.32423	.21101	.32796	.21280	13 14
47	.31329	.20573	.31700	.20749	.32069	.20926	.32437	.21104	.32802	.21282	13
+ 12'	9.31335	.20575	9.31706	.20752	9.32076	.20929	9.32443	.21107	9.32808	.21285	12
49 50	.31341	.20578	.31712	.20755	.32082	.20932	.32449	.21110	.32814	.21288	11
50 51	.31347 .31354	.20581 .20584	.31719 .31725	.20758 .20761	.32088	.20935 .20938	.32455 $.32461$.21113 .21116	.32820 .32827	.21291 .21294	10 9
+ 13'	9.31360	.20587	9.31731	.20764	9.32100	.20941	9.32467	.21119	9.32833	.21297	8
53	.31366	.20590	.31737	.20767	.32106	.20944	.32473	.21122	.32839	.21300	7
54 55	.31372	.20593	.31743	.20770	.32112	.20947	.32480	.21125	.32845	.21303	6
55 + 14'	$\frac{.31378}{9.31385}$.20596	$\frac{.31749}{9.31756}$.20773	$\frac{.32119}{9.32125}$.20950	$\frac{.32486}{9.32492}$.21128	$\frac{.32851}{9.32857}$.21306	5
57	.31391	.20602	.31762	.20779	.32131	.20956	.32492	.21134	.32863	.21312	4
58	.31397	.20605	.31768	.26782	.32137	.20959	.32504	.21137	.32869	.21315	2
59	.31403	.20608	.31774	.20785	.32143	.20962	.32510	.21140	.32875	.21318	1
+ 15'	9.31409	.20611	9.31780	.20788	9.32149	.20965	9.32516	.21143	9.32881	.21321	0
	20h	24m	20h	23m	20h	22m	20h	21m	20h.	20m	
		-									

					naversi						
	3h 40m	55° 0′	3h 41m	55° 15′	3h 42m	55° 30′	3h 4.3m	55° 45′	3h 44m	56° 0′	
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log.Hav.	Nat. Hav	S
0	9.32881	.21321	9.33244	.21500	9.33605	.21680	9.33965	.21860	9.34322	.22040	60
1	.32887	.21324	.33250	.21503	.33611	.21683	.33971	.21863	.34328	.22043	59
2 3	.32893	.21327 .21330	.33256	.21506 .21509	.33617 .33623	.21686 .21689	.33976 $.33982$.21866 .21869	.34334	.22046 .22049	58
+ 1'	32899 9.32905	.21333	33262 9.33268	.21512	9.33629	.21692	9.33988	.21872	9.34346	.22052	57 56
5	.32911	21336	.33274	.21515	.33635	.21695	.33994	.21875	.34352	.22055	55
6	.32918	.21339	.33280	.21518	.33641	.21698	.34000	.21878	.34358	.22058	54
7	.32924	.21342	33286	.21521	.33647	.21701	.34006	.21881	.34363	.22061	53
+ 2'	9.32930	.21345	9.33292	.21524	9.33653	.21704	9.34012	.21884	9.34369	.22064	52
9 10	.32936	.21348 .21351	.33298 .33305	.21527 .21530	.33659 .33665	.21707 .21710	.34018 .34024	.21887 .21890	.34375 $.34381$.22067 .22071	51 50
11	.32948	.21354	.33311	.21533	.33671	.21713	.34030	.21893	.34387	.22074	49
+ 3'	9.32954	.21357	9.33317	.21536	9.33677	.21716	9.34036	.21896	9.34393	.22077	48
13	.32960	.21369	.33323	.21539	.33683	.21719	.34042	.21899	.34399	.22080	47
14 15	.32966 .32972	.21363 .21366	.33329 .33335	.21542 .21545	.33689 .33695	.21722 .21725	.34048	.21902 .21905	.34405 $.34411$.22083 .22086	46 45
+ 4'	9.32978	.21369	9.33341	.21548	9.33701	.21728	$\frac{0.31061}{9.34060}$.21908	9.34417	.22089	44
17	.32984	.21372	.33347	.21551	.33707	.21731	.34066	.21911	.34423	.22092	43
18	.32990	.21375	.33353	.21554	.33713	.21734	.34072	.21914	.34429	.22095	42
19	.32996	.21378	.33359	.21557	.33719	.21737	.34078	.21917	.34435	.22098	41
+ 5'	9.33002 .33008	.21381 .21384	9.33365 .33371	.21560 .21563	$9.33725 \\ .33731$.21740 .21743	$9.34084 \\ .34090$.21920 .21923	$9.34441 \\ .34446$.22101 .22104	40 39
22	.33014	.21387	.33377	.21566	.33737	.21746	.34096	.21926	.34452	.22107	38
23	.33021	.21390	.33383	.21569	.33743	.21749	.34102	.21929	.34458	.22110	37
+ 6'	9.33027	.21393	9.33389	.21572	9.33749	.21752	9.34108	.21932	9.34464	.22113	36
25	.33033 .33039	.21396	.33395	.21575	.33755 $.33761$.21755 .21758	.34114 $.34120$.21935 .21938	.34470	.22116 .22119	35
-26 27	.33045	.21399 .21402	.33401	.21578 .21581	.33767	.21761	.34126	.21941	.34476 .34482	.22122	34 33
+ 7'	9.33051	.21405	9.33413	.21584	9.33773	.21764	9.34132	.21944	9.34488	.22125	32
29	.33057	.21408	.33419	.21587	.33779	.21767	.34137	.21947	.34494	.22128	31
30	.33063	.21411	.33425	.21590	.33785	.21770	.34143	.21950	.34500	.22131	30
$\frac{31}{+8'}$	$\frac{.33069}{9.33075}$.21414	$\frac{.33431}{9.33437}$	$\frac{.21593}{.21596}$	$\frac{.33791}{9.33797}$.21773	$\frac{.34149}{9.34155}$.21953	$\frac{.34506}{9.34512}$.22134	29
33	.33081	.21420	.33443	.21599	.33803	21779	.34161	.21959	.34518	.22140	27
34	.33087	.21423	.33449	.21602	.33809	.21782	.34167	.21962	.34524	.22143	26
35	.33093	.21426	.33455	.21605	.33815	.21785	.34173	.21965	.34529	.22146	25
+ 9'	9.33099 .33105	.21429 .21431	9.33461	.21608 .21611	$9.33821 \\ .33827$.21788 .21791	$9.34179 \\ .34185$.21968 .21971	$9.34535 \\ .34541$.22149 .22152	24
38	.33111	.21434	.33473	.21614	.33833	21794	.34191	.21974	.34547	.22155	22
39	.33117	.21437	.33479	.21617	.33839	.21797	.34197	.21977	.34553	.22158	21
+ 10'	9.33123	.21440	9.33485	.21620	9.33845	.21800	9.34203	.21980	9.34559	.22161	20
41	.33129	.21443	.33491	.21623	.33851	.21803	.34209	.21983	.34565	.22164	19
42 43	.33135 .33142	.21446 .21449	.33497 .33503	.21626 .21629	.33857 .33863	.21806 .21809	.34215 $.34221$.21986 .21989	.34571 $.34577$.22167 .22170	18 17
+ 11'	9.33148	.21452	9.33509	.21632	9.33869	.21812	9.34227	.21992	9.34583	.22173	16
45	.33154	.21455	.33515	.21635	.33875	.21815	.34233	.21995	.34589	.22176	15
46	.33160 .33166	.21458	.33521	.21638 .21641	.33881	.21818 .21821	.34239	.21998	.34595	.22179	14
$\frac{47}{+12'}$	$\frac{.33160}{9.33172}$.21461	$\frac{.33527}{9.33533}$.21644	$\frac{.33887}{9.33893}$.21824	$\frac{.34245}{9.34251}$.22001	$\frac{.34600}{9.34606}$.22182	$\frac{13}{12}$
49	.33178	.21467	.33539	.21647	.33899	.21827	.34256	.22007	.34612	.22188	11
50	.33184	.21470	.33545	.21650	.33905	.21830	•34262	.22010	.34618	.22191	10
51	.33190	.21473	.33551	.21653	$\frac{.33911}{9.33917}$.21833	.34268	.22013	.34624	.22194	$\frac{9}{2}$
+ 13' 53	9.33196 .33202	.21476 .21479	9.33557	.21656 .21659	9.33917 $.33923$.21836 .21839	9.34274 .34280	.22016 .22019	9.34630 .34636	.22197 .22200	8
54	.33208	.21482	.33569	.21662	.33929	.21842	.34286	.22022	.34642	.22203	6
55	.33214	.21485	.33575	.21665	.33935	.21845	.34292	.22025	.34648	.22206	5
+ 14'	9.33220	.21488	9.33581	.21668	9.33941	.21848	9.34298	.22028	9.34654	.22209	4
57 58	.33226	.21491 .21494	.33587 .33593	.21671 .21674	.33947	.21851 .21854	34304 34310	.22031 .22034	.34660	.22212	3 2
59	.33238	.21497	.33599	21677	.33959	.21857	.34316	.22037	.34671	.22218	1
+ 15'	9.33244	.21500	9.33605	.21680	9.33965	.21860	9.34322	.22040	9.34677	.22221	0
	20h	19m	20h	18m	20h	17m	20h	16m	20h	15m	
In the second	-	-		-							

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TABLE 45.

	3h 45m	56° 15′	3h 46m	56° 30′	3h 47m	56° 45′	3h 48m	57° 0′	3h 49m	52° 15′	
s		Nat. Hav.		Nat. Hav.		Nat. Hav.				Nat .Hav.	s
0	9.34677	.22221	9.35031	.22403	9.35383	.22585	9.35733	.22768	9.36081	.22951	60
1	.34683	.22225	.35037	.22406	.35389	.22588	.35738	.22771	.36086	.22954	59
2 3	.34689 $.34695$.22228 .22231	.35043	.22409 .22412	.35394	.22591 .22594	.35744	.22774	.36092 .36098	.22957 .22960	58 57
+ 1'	9.34701	.22234	9.35054	.22415	9.35406	.22598	9.35756	.22780	9.36104	.22964	56
5	.34707	.22237	.35060	.22418	.35412	.22601	.35762	.22783	.36110	.22967	55
$\frac{6}{7}$.34713	.22240 .22243	.35066 $.35072$.22421 .22424	.35418 .35424	.22604 .22697	.35767	.22786 .22789	.36115 .36121	.22970	54 53
+ 2'	9.34725	.22246	9.35078	.22427	9.35429	.22610	9.35779	.22792	9.36127	.22976	52
9	.34730	.22249	.35084	.22430	.35435	.22613	.35785	.22795	.36133	.22979	51
10 11	.34736 .34742	.22252 .22255	.35090 .35096	.22433	.35441 .35447	.22616 .22619	.35791	.22799	.36139 .36144	.22982 .22985	50 49
+ 3'	9.34748	.22258	9.35101	.22440	9.35453	.22622	9.35802	.22805	9.36150	.22988	48
13	.34754	.22261	.35107	.22443	.35459	.22625	.35808	.22808	.36156	.22991	47
14 15	34760 34766	.22264	.35113	.22446 .22449	.35464	.22628 .22631	.35814	.22811	.36162 .36167	.22994	46 45
+ 4'	9.34772	.22270	9.35125	.22452	9.35476	.22634	9.35826	.22817	9.36173	.23000	44
17	.34778	.22273	.35131	.22455	.35482	.22637	.35831	.22820	.36179	.23003	43
18 19	.34784	.22276 .22279	.35137 .35143	.22458 .22461	.35488	.22640	.35837	.22823	.36185	.23006	42 41
+ 5'	9.34795	.22282	9.35148	.22464	9.35500	.22646	9.35849	.22829	9.36196	.23012	40
21	.34801	.22285	.35154	.22467	.35505	.22649	.35855	.22832	.36202	.23016	39
22 23	.34807	.22288 .22291	.35160 $.35166$.22470 .22473	.35511	.22652 .22655	.35860 .35866	.22835 .22838	.36208 .36214	.23019	38 37
+ 6'	9.34819	.22294	9.35172	.22476	9.35523	.22658	9.35872	.22841	9.36219	.23025	36
25	.34825	.22297	.35178	.22479	.35529	.22661	.35878	.22844	.36225	.23028	35
26 27	.34831 .34837	.22300 .22303	.35184 .35189	.22482 .22485	.35535 .35540	.22664 .22667	.35884	.22847 .22850	.36231 $.36237$.23031 .23034	34
+ 7	9.34843	.22306	9.35195	.22488	9.35546	.22671	9.35895	.22853	9.36243	.23037	32
29	.34848	.22309	.35201	.22491	.35552	.22674	.35901	.22857	.36248	.23040	31
30 31	.34854	.22312	.35207 .35213	.22494 .22497	.35558 .35564	.22677	.35907 .35913	.22860 .22863	.36254 .36260	.23043	30 29
+ 8'	9.34866	.22318	9.35219	.22500	9.35570	.22683	9.35918	.22866	9.36266	.23049	28
33	.34872	.22321	.35225	.22503	.35575	.22686	.35924	.22869	.36271	.23052	27
34 35	.34878	.22324	.35230 .35236	.22506 .22509	.35581	.22689 .22692	.35930 .35936	.22872	.36277 $.36283$.23055 .23058	25 25
+ 9'	9.34890	.22330	9.35242	.22512	9.35593	.22695	9.35942	.22878	9.36289	.23061	24
37	.34896	.22333	.35248	.22515	.35599	.22698	.35947	.22881	.36294	.23065	23
38 39	.34901 .34907	.22336 .22340	.35254 .35260	.22518 .22522	.35604 .35610	.22701 .22704	.35953 .35959	.22884	.36300	.23068	22 21
+ 10′	9.34913	.22343	9.35266	.22525	9.35616	.22707	9.35965	.22890	9.36312	.23074	20
41	.34919	.22346	.35271	.22528	.35622	.22710	.35971	.22893	.36318	.23077	19
42 43	.34925	.22349 .22352	.35277	.22531 .22534	.35628	.22713 .22716	.35976	.22896 .22899	.36323	.23080	18 17
+ 11'	9.34937	.22355	9.35289	.22537	9.35639	.22719	9.35988	.22902	9.36335	.23086	16
45	.34943	.22358 .22361	.35295	.22540 .22543	.35645	.22722 .22725	.35994	.22905 .22908	.36341	.23089	15
46 47	.34949	.22364	.35301 .35307	.22546	.35651 .35657	.22728	.36005	.22912	.36346 .36352	.23092	14 13
+ 12'	9.34960	.22367	9.35312	.22549	9.35663	.22731	9.36011	.22915	9.36358	.23098	12
49 50	.34966	.22370 .22373	.35318	.22552 .22555	.35669 .35674	.22735 .22738	.36017	.22918 .22921	.36364	.23101	11
50 51	.34972	.22376	.35324	.22558	.35680	.22741	.36023	.22924	.36369 .36375	.23104 .23107	10 9
+ 13'	9.34984	.22379	9.35336	.22561	9.35686	.22744	9.36034	.22927	9.36381	.23110	8
53 54	.34990	.22382 .22385	.35342 .35348	.22564 .22567	.35692 $.35698$.22747 .22750	.36040 .36046	.22930 .22933	.36387 .36392	.23114	6
55 55	.35002	.22388	.35353	.22570	.35703	.22753	.36052	.22936	.36398	.23120	5
+ 14'	9.35007	.22391	9.35359	.22573	9.35709	.22756	9.36058	.22939	9.36404	.23123	4
57 58	.35013 .35019	.22394	.35365	.22576 .22579	.35715 $.35721$.22759 .22762	.36063	.22942	.36410 .36415	.23126 .23129	3 2
59	.35025	.22400	.35377	.22582	.35727	22765	.36075	.22948	.36421	.23132	1
+ 15′	9.35031	.22403	9.35383	.22585	9.35733	.22768	9.36081	.22951	9.36427	.23135	0
	20h	14m	20h	13m	20h	12m	20h	11m	20h	10m	
					•						

	3h 50m	570 9A/	oh Eim	57° 45′	oh rom	58° 0′	oh Fom	58° 15′	oh Elm	58° 30′	
s	Log. Hav.		Log. Hav.		Log. Hav	Nat. Hav.		Nat. Hav.	Log. Hav.	1	s
]											<u> </u>
0	9.36427	.23135 .23138	9.36772 .36777	.23319 .23322	9.37114	.23504 .23507	9.37455 .374 6 1	.23689 .23692	9.37794	.23875 .23878	60 59
2	.36439	.23141	.36783	.23325	.37126	.23510	.37467	.23695	.37806	.23881	58
3	.36444	.23144	.36789	.23329	.37131	.23513	.37472	.23699	.37811	.23884	57
+ 1'	9.36450	.23147	9.36794	.23332	9.37137	.23516	9.37478	.23702	9.37817	.23887	56
5 6	.36456 .36462	.23150 .23153	.36800 .36806	.23335 .23338	.37143	.23519	.37484 .37489	.23705 .23708	.37823 .37828	.23891 .23894	55 54
7	.36467	.23156	.36812	.23341	.37154	.23526	.37495	.23711	.37834	.23897	53
+ 2'	9.36473	.23160	9.36817	.23344	9.37160	.23529	9.37501	.23714	9.37840	.23900	52
9	.36479	.23163	.36823	.23347	.37166	.23532	.37506	.23717	.37845	.23903	51
10	.36485	.23166	.36829	.23350	.37171	.23535	.37512	.23720	.37851	.23906	50
$\frac{11}{+3'}$.36490	.23169	.36834	.23353	$\frac{.37177}{9.37183}$	23538	$\frac{.37518}{9.37523}$.23723	.37856	.23909	49
$+ \frac{3}{13}$	$9.36496 \\ .36502$.23172 .23175	$9.36840 \\ .36846$.23356 .23359	.37188	.23541	.37529	.23726 .23729	$9.37862 \\ .37868$.23912 .23915	48 47
14	.36508	.23178	.36852	.23362	.37194	.23547	.37535	.23733	.37873	.23918	46
15	.36513	.23181	.36857	.23365	.37200	.23550	.37540	.23736	.37879	.23922	45
+ 4	9.36519	.23184	9.36863	.23368	9.37205	.23553	9.37546	.23739	9.37885	.23925	44
17 18	.36525	.23187	.36869	.23372 .23375	.37211	.23556 .23560	.37552	.23742	.37890	.23928	43
18	.36531 .36536	.23190 .23193	.36875 .36880	.23378	.37217 .37222	.23563	.37557 .37563	.23745 .23748	.37896	.23931 .23934	42 41
+ 5'	9.36542	.23196	9.36886	.23381	9.37228	.23566	9.37569	.23751	9.37907	.23937	$\frac{41}{40}$
21	.36548	.23199	.36892	.23384	.37234	.23569	.37574	.23754	.37913	.23940	39
22	.36554	.23203	.36897	.23387	.37239	.23572	.37580	.23757	.37918	.23943	38
23	.36559	.23206	.36903	.23390	.37245	.23575	.37585	.23760	.37924	.23946	37
$+{}^{6'}_{25}$	9.36565	.23209 .23212	9.36909 .36915	.23393 .23396	$9.37251 \\ .37257$.23578 .23581	9.37591	.23764 .23767	$9.37930 \\ .37935$.23950 .23953	36 35
26	.36577	.23215	.36920	.23399	.37262	.23584	.37602	.23770	.37941	.23956	34
27	.36582	.23218	.36926	.23402	.37268	.23587	.37608	.23773	.37947	.23959	33
+ 7'	9.36588	.23221	9.36932	.23405	9.37274	.23590	9.37614	.23776	9.37952	.23962	32
29	.36594	.23224	.36937	.23409	.37279	.23594	.37619	.23779	.37958	.23965	31
30 31	.36599 .36605	.23227 .23230	.36943	.23412 .23415	.37285 $.37291$.23597	.37625 .37631	.23782 .23785	.37963 .37969	.23968 .23971	30 29
+ 8'	9.36611	.23233	9.36955	.23418	$\frac{.37231}{9.37296}$.23603	$\frac{.37631}{9.37636}$.23783	$\frac{.37909}{9.37975}$.23974	28
33	.36617	.23236	.36960	.23421	.37302	.23606	.37642	.23791	.37980	.23977	27
34	.36622	.23239	.36966	.23424	.37308	.23609	.37648	.23795	.37986	.23981	26
35	.36628	.23242	.36972	.23427	.37313	.23612	.37653	.23793	.37992	.23984	25
+ 9'	9.36634 .36640	.23246 .23249	9.36977	.23430	9.37319	.23615	9.37659	.23801	9.37997	.23987	24
38	.36645	.23252	.36983	.23433 .23436	.37325 .37330	.23618 .23621	.37665	.23804 .23807	.38003 .38008	.23990 .23993	23 22
39	.36651	.23255	.36995	.23439	.37336	.23624	.37676	.23810	.38014	.23996	21
+ 10′	9.36657	.23258	9.37000	.23442	9.37342	.23627	9.37682	.23813	9.38020	.23999	20
41	.36663	.23261	.37006	.23445	.37347	.23631	.37687	.23816	.38025	.24002	19
42 43	.36668 .36674	.23264	.37012	.23449 .23452	.37353	.23634	.37693	.23819	.38031	.24005	18
+ 11'	9.36680	$\frac{.23267}{.23270}$	$\frac{.37017}{9.37023}$.23455	$\frac{.37359}{9.37364}$	$\frac{.23637}{.23640}$	$\frac{.37699}{9.37704}$.23822	$\frac{.38037}{9.38042}$.24009	$\frac{17}{16}$
45	.36686	.23273	.37023	.23458	.37370	.23643	.37710	.23829	.38048	.24012	15 15
46	.36691	.23276	.37034	.23461	.37376	.23646	.37715	.23832	.38053	.24018	14
47	.36697	.23279	.37040	.23464	.37382	.23649	.37721	.23835	.38059	.24021	13
+ 12'	9.36703	.23282	9.37046	.23467	9.37387	.23652	9.37727	.23838	9.38065	.24024	12
50 50	.36708	.23285 .23289	.37052	.23470 .23473	.37393	.23655 .23658	.37732	.23841 .23844	.38070	.24027 .24030	11 10
51	.36720	.23292	.37063	.23476	.37404	.23661	.37744	.23847	.38081	.24033	9
+ 13'	9.36726	.23295	9.37069	.23479	9.37410	.23665	9.37749	.23850	9.38087	.24036	8
53	.36731	.23298	.37074	.23482	.37416	.23668	.37755	.23853	.38093	.24040	7
54 55	.36737	.23301	.37080	.23486	.37421	.23671	.37761	.23856	.38098	.24043	6
+ 14'	.36743 9 .36749	$\frac{.23304}{.23307}$	$\frac{.37086}{9.37091}$.23489	$\frac{.37427}{9.37433}$.23674	$\frac{.37766}{9.37772}$.23860 .23863	$\frac{.38104}{9.38110}$.24046	$\frac{5}{4}$
57	.36754	.23310	.37091	.23492	.37438	.23680	.37778	.23866	.38115	.24049	4 3
58	.36760	.23313	.37103	.23498	.37444	.23683	.37783	.23869	.38121	.24055	2
59	.36766	.23316	37109	.23501	.37450	.23686	.37789	.23872	.38126	.24058	_1
+ 15'	9.36772	.23319	9.37114	.23504	9.37455	.23689	9.37794	.23875	9.38132	.24061	0
	20h	9m	20h	8m	20h	7m	20h	6m	90h	. 5m	
	~	-	20		20.0		20.0	J	20"	J	

TABLE 45.

			1		l		l				_
		58° 45′		59° 0′		59° 15′		59° 39′	3h 59m		
S		Nat. Hav.		Nat. Hav.		Nat. Hav.			Log. Hav.	Nat. Hav.	S
0	9.38132	.24961	9.38468	.24248	9.38802	.24435	9.39134	.24623	9.39465	.24811	60
1 2	.38138	.24064 .24068	.38473	.24251 .24254	.38807	.24438	.39140	.24626	.39470 .39476	.24814	59
3	.38149	.24071	.38485	.24257	.38813	.24442	.39145 .39151	.24629 .24632	.39481	.24818 .24821	58 57
+ 1'	9.38154	.24074	9.38490	.24261	9.38824	.24448	9.39156	.24636	9.39487	.24824	56
5	.38160	.24077	.38496	.24264	.38830	.24451	.39162	.24639	.39492	.24827	55
6	.38166	.24080	.38501	.24267	.38835	.24454	.39167	.24642	.39498	.24830	54
$\frac{\gamma}{+2'}$	$\frac{.38171}{9.38177}$.24083 .24086	$\frac{.38507}{9.38512}$.24270	$\frac{.38841}{9.38846}$.24457	39173 9.39178	.24645	39503 9.39509	.24833	53
T 9 ~	.38182	.24089	.38518	.24276	.38852	.24463	.39184	.24651	.39514	.24840	52 51
10	.38188	.24092	.38524	.24279	.38857	.24467	.39189	.24654	.39520	.24843	50
11	.38194	.24096	.38529	.24282	.38863	.24470	.39195	.24658	.39525	.24846	49
+ 3'	9.38199	.24099	9.38535 $.38540$.24286 .24289	9.38868	.24473	9.39201	.24661	9.39531	.24849	48
13 14	.38205	.24102 .24105	.38546	.24292	.38874 .38880	.24476 .24479	.39206 .39212	.24664 .24667	.39536 .39542	.24852 .24855	47 46
15	.38216	.24108	.38551	.24295	.38885	.24482	.39217	.24670	.39547	.24858	45
+ 4'	9.38222	.24111	9.38557	.24298	9.38891	.24485	9.39223	.24673	9.39553	.24862	44
17	.38227	.24114	.38563	.24301	.38896	.24488	.39228	.24676	.39558	.24865	43
18 19	.38233 .38239	.24117 .24120	.38568	.24304	.38902	.24492 .24495	.39234 .39239	.24680 .24683	.39564 .39569	.24868 .24871	42 41
+ 5'	9.38244	.24124	9.38579	.24310	9.38913	.24498	9.39245	.24686	9.39575	.24874	40
21	.38250	.24127	.38585	.24314	.38918	.24501	.39250	.24689	.39580	.24877	39
22	.38255	.24130	.38590	.24317	.38924	.24504	.39256	.24692	.39586	.24880	38
23	.38261	.24133	.38596	.24320	.38929	.24507	.39261	.24695	.39591	.24884	37
+ 6'	$9.38267 \\ .38272$.24136 .24139	9.38602 $.38607$.24323 .24326	$9.38935 \\ .38941$.24510 .24514	9.39267 .39272	.24698 .24701	9.39597 $.39602$.24887 .24890	36 35
26	.38278	.24142	.38613	.24329	.38946	.24517	.39278	.24705	.39608	.24893	34
27	.38283	.24145	.38618	.24332	.38952	.24520	.39283	.24708	.39613	.24896	33
+ 7'	9.38289	.24148	9.38624	.24335	9.38957	.24523	9.39289	.24711	9.39619	.24899	32
29 30	.38295	.24152 .24155	.38629	.24339	.38963 .38968	.24526 .24529	.39294 .39300	.24714	39624	.24902 .24906	31 30
31	.38306	.24158	.38641	.24345	.38974	.24532	.39305	.24729	.39630 .39635	.24900	29
+ 8'	9.38311	.24161	9.38646	.24348	9.38979	.24535	9.39311	.24723	9.39641	.24912	28
33	.38317	.24164	.38652	.24351	.38985	.24539	.39316	.24727	.39646	.24915	27
34 35	.38322 .38328	.24167 .24170	.38657 .38663	.24354 .24357	.38990	.24542	.39322	.24730	.39652	.24918	26
$\frac{33}{+9'}$	9.38334	.24173	9.38668	.24360	$\frac{.38996}{9.39002}$.24545 .24548	$\frac{.39327}{9.39333}$.24733	39657 9.39663	.24921	25 24
37	.38339	.24176	.38674	.24364	.39007	.24551	.39338	.24739	.39668	.24928	23
38	.38345	.24180	.38680	.24367	.39013	.24554	.39344	.24742	.39674	.24931	22
39	.38350	.24183	.38685	.24370	.39018	.24557	.39349	.24745	.39679	.24934	21
+ 10' 41	$9.38356 \\ .38362$.24186 .24189	$9.38691 \\ .38696$.24373 .24376	$9.39024 \\ .39029$.24560 .24564	9.39355	.24749	$9.39685 \\ .39690$.24937 .24940	20
41 42	.38367	.24192	.38702	.24379	.39029	.24567	.39360 .39366	.24752 .24755	.39690	.24940	19 18
43	.38373	.24195	.38707	.24382	.39040	.24570	.39371	.24758	.39701	.24946	17
+ 11'	9.38378	.24198	9.38713	.24385	9.39046	.24573	9.39377	.24761	9.39706	.24950	16
45 46	.38384	.24201 .24204	.38719	.24388	.39051	.24576	.39382	.24764	.39712	.24953	15
40 47	.38395	.24204	.38724	.24392 .24395	.39057 .39062	.24579 .24582	.39388 .3939 3	.24767 .24770	.39717 .39723	.24956 .24959	14 13
	9.38401	.24211		.24398		.24586	9.39399	.24774	9.39728	.24962	12
49	.38406	.24214	.38741	.24401	.39073	.24589	.39404	.24777	.39734	.24965	11
50 51	.38412	.24217	.38746	.24404	.39079	.24592	.39410	.24780	.39739	.24969	10
$\frac{51}{+13'}$	$\frac{.38418}{9.38423}$.24220	$\frac{.38752}{9.38757}$.24407	$\frac{.39085}{9.39090}$.24595 .24598	.39415	.24783	.39745	.24972	9
53	.38423	.24226	.38763	.24413	.39096	.24598 .24601	9.39421	.24786 .24789	9.39750 .39756	.24975	8 7
54	.38434	.24229	.38769	.24417	.39101	.24604	.39432	.24792	.39761	.24981	6
55	.38440	.24233	.38774	.24420	.39107	.24607	.39437	.24796	.39767	.24984	5
+ 14'	9.38445	.24236	9.38780	.24423	9.39112	.24611	9.39443	.24799	9.39772	.24987	3
57 58	.38451	.24239 .24242	.38785 $.38791$.24426	.39118 .39123	.24614 .24617	.39448	.24802 .24805	.397 7 8 .39783	.24991 .24994	2
59	.38462	.24245	.38796	24432	.39129	.24620	.39459	.24808	.39789	.24997	1
+ 15'	9.38468	.24248	9.38802	.24435	9.39134	.24623	9.39465	.24811	9.39794	.25000	0
	20h	4m	20h	3m	20h	2m	20h	1m	20h	. 0m	

TABLE 45.

	4h 0m	60° 0′	4h 1m	60° 15′	4h 2m	60° 30′	4h 3m	60° 45′	4h 4m	61° 0′	
·s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log.Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.39794	.25000	9.40121	.25189	9.40447	.25379	9.40771	.25569	9.41094	.25760	60
1	.39799	.25003 .25006	.40127	.25192 .25195	.40453	.25382 .25385	.40777 .40782	.25572 .25575	.41099 .41105	.25763 .25766	59 58
2 3	.39805 .39810	.25000	.40132 .40138	.25199	.40463	.25388	.40787	.25578	.41110	.25769	57
+ 1'	9.39816	.25013	9.40143	.25202	9.40469	.25391	9.40793	.25582	9.41115	.25772	56
5	.39821	.25016	.40149	.25205	.40474	.25395	.40798	.25585	.41121 .41126	.25775	55 54
6 7	.39827 .39832	.25019 .25022	.40154	.25208 .25211	.40480 .40485	.25398 .25401	.40804 .40809	.25588 .25591	.41131	.25782	53
+ 2'	9.39838	.25025	9.40165	.25214	9.40490	.25404	9.40814	.25594	9.41137	.25785	52
9	.39843	.25028	.40170	.25218	.40496	.25407	.40820	.25597	.41142	.25788	51
10 11	.39849	.25032 .25035	.40176 .40181	.25221 .25224	.40501 .40507	.25410 .25414	.40825 .40831	.25601 .25604	.41147 .41153	.25791 .25795	50 49
+ 3'	9.39860	.25038	9.40187	.25227	9.40512	.25417	9.40836	.25607	9.41158	.25798	48
13	.39865	.25041	.40192	.25230	.40518	.25420	.40841	.25610	.41163	.25801	47
14 15	.39871 .39876	.25044 .25047	.40198 .40203	.25233 .25237	.40523 .40528	.25423	.40847 .40852	.25613 .25617	.41169 .41174	.25804 .25807	46 45
+ 4'	9.39881	.25050	9.40208	.25240	9.40534	.25429	9.40858	.25620	9.41180	.25810	44
17	.39887	.25054	.40214	.25243	.40539	.25433	.40863	.25623	.41185	.25814	43
18 19	.39892	.25057 .25060	.40219 $.40225$.25246 .25249	.40545 .40550	.25436 .25439	.40868 .40874	.25626 .25629	.41190 .41196	.25817 .25820	42
	9.39903	.25063	9.40230	.25252	9.40555	.25442	9.40879	.25632	$\frac{9.41201}{9.41201}$.25823	40
21	.39909	.25066	.40236	.25255	.40561	.25445	.40884	.25636	.41206	.25826	39
22 23	.39914	.25069 .25072	.40241	.25259 .25262	.40566 .40572	.25448 .25452	.40890 .40895	.25639 .25642	.41212 .41217	.25830 .25833	38 37
+ 6'	9.39925	.25076	9.40252	.25265	9.40577	.25455	9.40900	.25645	9.41222	.25836	36
25	.39931	.25079	.40257	.25268	.40582	.25458	.40906	.25648	.41228	.25839	35
26	.39936	.25082	.40263	.25271	.40588	.25461	.40911	.25651	.41233	.25842	34
+ 7'	$\frac{.39942}{9.39947}$.25085 .25088	$\frac{.40268}{9.40274}$.25274	.40593 9.40599	.25464	$\frac{40917}{9.40922}$.25655	$\frac{.41238}{9.41244}$.25845	33
29	.39952	.25091	.40279	.25281	.40604	.25471	.40927	.25661	.41249	.25852	31
30	.39958	.25095	.40284	.25284	.40609	.25474	.40933	.25664	.41254	.25855	30
$\frac{31}{+8'}$	39963	.25098	$\frac{.40290}{9.40295}$.25287 .25290	$\frac{.40615}{9.40620}$.25477	$\frac{.40938}{9.40943}$.25667	$\frac{.41260}{9.41265}$.25858 .25861	$\frac{29}{28}$
+ 8/	.39974	.25104	.40301	.25293	.40626	.25483	.40949	.25674	.41270	.25865	27
. 34	.39980	.25107	.40306	.25297	.40631	.25487	.40954	.25677	.41276	.25868	26
$\frac{35}{+9'}$	39985 9.39991	.25110	$\frac{.40312}{9.40317}$.25300	$\frac{.40636}{9.40642}$.25490	$\frac{.40960}{9.40965}$.25680	$\frac{.41281}{9.41287}$.25871	25
37	.39996	.25113	.40322	.25306	.40647	.25496	.40970	.25686	.41292	.25877	23
38	.40002	.25120	.40328	.25309	.40653	.25499	.40976	.25690	.41297	.25880	22
39	.40007	.25123	.40333	.25312	.40658	.25502	.40981	.25693	.41303	.25884	21
+ 10'	9.40012	.25126 .25129	9.40339 .40344	.25316 .25319	9.40663 .40669	.25506 .25509	$9.40986 \\ .40992$.25696 .25699	9.41308 .41313	.25887 .25890	20 19
42	.40023	.25132	.40350	.25322	.40674	.25512	.40997	.25702	.41319	.25893	18
43	.40029	.25136	.40355	.25325	.40680	.25515	.41003	.25705	.41324	.25896	17
+ 11' 45	9.40034	.25139 .25142	9.40360 .40366	.25328	9.40685	.25518 .25521	9.41008 .41013	.25709 .25712	9.41329 .41335	.25900 .25903	16 15
46	.40045	.25145	.40371	.25335	.40696	.25525	.41019	.25715	.41340	.25906	14
47	.40051	.25148	.40377	.25338	.40701	.25528	.41024	.25718	.41345	.25909	13
+ 12'	9.40056	.25151	9.40382 .40388	.25341	$9.40707 \\ .40712$.25531 .25534	9.41029 $.41035$.25721 .25724	9.41351 .41356	.25912 .25915	12 11
50	40067	.25158	.40393	.25347	.40717	.25537	.41040	.25728	.41361	.25919	10
51	.40072	.25161	.40398	.25350	.40723	.25540	.41046	.25731	.41367	.25922	9
+ 13′	9.40078 .40083	.25164 .25167	9.40404 .40409	.25354 .25357	9.40728 .40734	.25544	$9.41051 \\ .41056$.25734 .25737	$9.41372 \\ .41377$.25925 .25928	8
54	40089	.25170	.40415	.25360	.40739	.25550	.41050	.25740	.41383	.25931	6
55	.40094	.25173	.40420	.25363	.40744	.25553	.41067	.25744	.41388	.25935	5
+ 14' 57	9.40100	.25177 .25180	9.40425 .40431	.25366 .25369	9.40750 .40755	.25556 .25559	$9.41072 \\ .41078$.25747 .25750	9.41393 .41399	.25938 .25941	4
58	.40103	.25183	.40431	.25372	.40755	.25563	.41078	.25753	.41399	.25941	2
59	.40116	.25186	.40442	.25376	.40766	.25566	.41088	.25756	.41409	.25947	1
+ 15'	9.40121	.25189	9.40447	.25379	9.40771	.25569	9.41094	.25760	9.41415	.25951	0
	19h	59m	19h	58m	19h	57m	19h	56m	19h	55m	

	4h 5m	61° 15′	4h 6m	61° 30′	4h 7m	61° 45′	4h 8m	62° 0′	4h 9m	62° 15′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
0	9.41415	.25951	9.41734	.26142	9.42052	.26334	9.42368	.26526	9.42682	.26719	60
1 2	.41420 .41425	.25954 .25957	.41739	.26145 .26148	.42057 $.42062$.26337 .26340	.42373	.26530 .26533	.42688	.26722	59 58
3	.41431	.25960	.41750	.26152	.42068	.26344	.42384	.26536	.42698	.26729	57
+ 1'	9.41436	.25963	9.41755	.26155	9.42073	.26347	9.42389	.26539	9.42703	.26732	56
5 6	.41441	.25966 .25970	.41761	.26158 .26161	.42078 $.42083$.26350 .26353	.42394 .42399	.26543 .26546	.42709	.26735 .26739	55 54
7	.41452	.25973	.41771	.26164	.42089	.26356	.42405	.26549	.42719	.26742	53
+ 2'	9.41457	.25976	9.41776	.26168	9.42094	.26360	9.42410	.26552	9.42724	.26745	52
9 10	.41463	.25979 .25982	.41782 .41787	.26171 .26174	.42099 $.42105$.26363 .26366	.42415 $.42420$.26555 .26559	.42730 $.42735$.26748 .26751	51 50
11	.41473	.25986	.41792	.26177	.42110	.26369	.42426	.26562	.42740	.26755	49
+ 3'	9.41479	.25989	9.41798	.26180	9.42115	.26372	9.42431	.26565	9.42745	.26758	48
13 14	.41484	.25992 .25995	.41803 .41808	.26184 .26187	.42120 $.42126$.26376 .26379	.42436 .42441	.26568 .26571	.42750 $.42756$.26761 .26764	47 46
15	.41495	.25998	.41814	.26190	.42131	.26382	.42447	.26575	.42761	.26768	45
+ 4'	9.41500	.26002	9.41819	.26193	9.42136	.26385	9.42452	.26578	9.42766	.26771	44
17 18	.41505 .41511	.26005 .26008	.41824 $.41829$.26196 .26200	.42141 .42147	.26389 .26392	.42457	.26581 .26584	.42771	.26774	43
19	.41516	.26011	.41835	.26203	.42152	.26395	.42468	.26587	.42782	26780	41
+ 5'	9.41521	.26014	9.41840	.26206	9.42157	.26398	9.42473	.26591	9.42787	.26784	40
21 22	.41527 .41532	.26017 .26021	.41845 $.41851$.26209 .26212	.42163 $.42168$.26402 .26405	.42478 .42483	.26594 .26597	.42792	.26787 .26790	39 38
23	.41537	.26024	.41856	.26216	.42173	.26408	.42489	.26600	.42803	.26793	37
+ 6'	9.41543	.26027	9.41861	.26219	9.42178	.26411	9.42494	.26604	9.42808	.26797	36
25 26	.41548	.26030 .26033	.41867 .41872	.26222 .26225	.42184 .42189	.26414 .26417	.42499 .42504	.26607 .26610	.42813	.26800 .26803	35
27	.41559	.26037	.41877	.26228	.42194	.26421	.42510	.26613	.42824	.26806	33
+ 7'	9.41564	.26040	9.41882	.26232	9.42199	.26424	9.42515	.26616	9.42829	.26809	32
29 30	.41569 $.41575$.26043 .26046	.41888 .41893	.26235 .26238	.42205 $.42210$.26427 .26430	.42520 $.42525$.26620 .26623	.42834	.26813 .26816	31
31	.41580	.26049	.41898	.26241	.42215	.26433	.42531	.26626	.42844	.26819	29
+ 8'	9.41585	.26053	9.41904	.26244	9.42221	.26437	9.42536	.26629	9.42850	.26822	28
33 34	.41590 $.41596$.26056 .26059	.41909 $.41914$.26248 .26251	.42226 $.42231$.26440 .26443	.42541	.26632 .26636	.42855	.26826 .26829	27 26.
35	.41601	.26062	.41920	.26254	.42236	.26446	.42552	.26639	.42865	.26832	25
+ 9'	9.41606	.26065	9.41925	.26257	9.42242	.26449	9.42557	.26642	9.42870	.26835	24
37 38	.41612 .41617	.26069 .26072	.41930 .41935	.26260 .26264	.42247 $.42252$	26453 .26456	.42562	.26645 .26649	.42876	.26838 .26842	23
39	.41622	.26075	.41941	.26267	.42257	.26459	.42573	.26652	.42886	.26345	21
+ 10′	9.41628	.26078	9.41946	.26270	9.42263	.26462	9.42578	.26655	9.42891	.26848	20
41 42	41633 41638	.26081 .26085	.41951 $.41957$.26273 .26276	.42268 $.42273$.26465 .26469	.42583 .42588	.26658 .26661	.42897	.26851 .26855	19 18
43	.41644	.26088	.41962	.26280	.42278	.26472	.42593	.26665	.42907	.26858	17
+ 11'	9.41649	.26091	9.41967	.26283	9.42284	.26475	9.42599	.26668	9.42912	.26861	16
45 46	.41654 $.41660$.26094 .26097	.41972	.26286 .26289	.42289	.26478 .26481	.42604	.26671 .26674	.42917 $.42923$.26864 .26867	15 14
47	.41665	.26101	.41983	.26292	.42300	.26485	.42614	.26677	.42928	.26871	13
+ 12'	9.41670	.26104	9.41988	.26296	9.42305	.26488	9.42620	.26681	9.42933	.26874	12
49 50	.41676 .41681	.26107 .26110	.41994 .41999	.26299 .26302	.42310 .42315	.26491 .26494	.42625 $.42630$.26684 .26687	.42938 .42943	.26877 .26880	11 10
51	.41686	.26113	.42004	.26305	.42321	.26498	.42635	.26690	.42949	.26883	9
+ 13'	9.41692	.26117	9.42009	.26308	9.42326	.26501	9.42641	.26694	9.42954	.26887	8
53 54	.41697 $.41702$.26120 .26123	.42015	.26312 .26315	.42331	.26504 .26507	.42646 $.42651$.26697 .26700	.42959	.26890 .26893	6
55	.41707	.26126	.42025	.26318	.42342	.26510	.42656	.26703	.42969	.26896	5
+ 14'	9.41713	.26129	9.42031 .42036	.26321 .26324	9.42347	.26514	9.42662	.26706	9.42975 .42980	.26900	4
57 58	.41718	.26132 .26136	.42036	.26324	.42352 .42357	.26517 .26520	.42667 .42672	.26710 .26713	.42985	.26903 .26906	3 2
59	.41729	.26139	.42046	.26331	.42363	.26523	.42677	.26716	.42990	.26909	1
+ 15'	9.41734	.26142	9.42052	.26334	9.42368	.26526	9.42682	.26719	9.42996	.26913	0
	19h	54m	19h	53m	19h	52m	19h	51m	19h	50m	

TABLE 45.

					114 (01511			han 4 m/	43 4 400	000 004	_
	4h 10m			62° 45′	4h 12m		4h 13m		4h 14m		
S	Log. Hav.	Nat. Hav.		Nat. Hav.							
0	9.42996	.26913	9.43307	.27106	9.43617	.27300 .27304	9.43926	.27495 .27498	9.44232 $.44238$.27690 .27693	60 59
1 2	.43001	.26916 .26919	.43312 .43317	.27110 .27113	.43622	.27304	.43931 .43936	.27502	.44243	.27697	58
3	.43011	.26922	.43323	.27116	.43632	.27310	.43941	27505	.44248	.27700	57
+ 1'	9.43016	.26925	9.43328	.27119	9.43638	.27313	9.43946	.27508	9.44253	.27703	56
5	.43022	.26929	.43333	.27122	.43643	.27317	.43951	.27511	.44258	.27706	55
6	.43027	.26932	.43338	.27126	.43648	.27320	.43956	.27515	.44263	.27710	54
.7	.43032	.26935	.43343	.27129	.43653	.27323	.43961	.27518	.44268	.27713	53
+ 2'	9.43037	.26938	9.43348	.27132 .27135	9.43658	.27326 .27330	$9.43967 \\ .43972$.27521 .27524	9.44273 $.44278$.27716 .27719	52 51
9	.43042	.26942 .26945	.43354	.27139	.43663 .43669	.27333	.43977	.27528	.44283	.27723	50
11	.43053	.26948	.43364	.27142	.43674	.27336	.43982	27531	.44289	.27726	49
+ 3'	9.43058	.26951	9.43369	.27145	9.43679	.27339	9.43987	.27534	9.44294	.27729	48
13	.43063	.26955	.43374	.27148	.43684	.27343	.43992	.27537	.44299	.27732	47
14	.43068	.26958	.43380	.27152	.43689	.27346	.43997	.27541	.44304 .44309	.27736	46 45
15	.43074	.26961	$\frac{.43385}{9.43390}$.27155 .27158	.43694 9.43699	.27349	.44002 9.44008	.27544	9.44314	.27742	44
+ 4'	9.43079	.26967	•43395	.27161	.43705	.27356	.44013	.27550	.44319	.27745	43
18	.43089	.26971	.43400	.27165	.43710	.27359	.44018	.27554	.44324	.27749	42
19	.43094	.26974	.43405	.27168	.43715	.27362	.44023	.27557	.44329	.27752	41
+ 5'	9.43100	.26977	9.43411	.27171	9.43720	.27365	9.44028	.27560	9.44334	.27755	40
21	.43105	.26980	.43416	.27174 .27177	.43725	.27369 .27372	.44033	.27563 .27567	.44340 .44345	.27758 .27762	39 38
22 23	.43110	.26984	.43421	.27181	.43730 .43735	.27375	.44043	.27570	.44350	.27765	37
$+\frac{20}{6'}$	9.43120	.26990	9,43431	.27184	9.43741	.27378	9.44048	.27573	9.44355	.27768	36
25	.43126	.26993	.43436	.27187	.43746	.27382	.44054	.27576	.44360	.27772	35
26	.43131	.26996	.43442	.27190	.43751	.27385	.44059	.27580	.44365	.27775	34
27	.43136	.27000	•43447	.27194	.43756	.27388	.44064	.27583	.44370	.27778	33
+ 7	9.43141	.27003 .27006	9.43452	.27197 .27200	$9.43761 \\ .43766$.27391 .27394	9.44069 .44074	.27586 .27589	9.44375 .44380	.27781 .27785	32 31
29 30	.43140	.27009	.43462	.27203	.43771	.27398	.44074	.27593	.44385	.27788	30
31	43157	.27013	.43467	.27207	.43777	.27401	.44084	.27596	.44390	.27791	29
+ 8'	9.43162	.27016	9.43473	.27210	9.43782	.27404	9.44089	.27599	9.44396	.27794	28
33	.43167	.27019	.43478	.27213	.43787	.27407	.44095	.27602	.44401	.27798	27
34	.43172	.27022 .27025	.43483	.27216	.43792	.27411	.44100	.27606	.44406	.27801 .27804	26 25
$\frac{35}{+}$.43177 9.43183	.27029	$\frac{.43488}{9.43493}$.27220	$\frac{.43797}{9.43802}$.27414	$\frac{.44105}{9.44110}$.27609	$\frac{.44411}{9.44416}$.27807	24
37	.43188	.27032	.43498	.27226	.43807	.27420	.44115	.27615	.44421	.27811	23
38	.43193	.27035	.43504	.27229	.43813	.27424	.44120	.27619	.44426	.27814	22
39	.43198	.27038	.43509	.27232	.43818	.27427	.44125	.27622	.44431	.27817	21
+ 10'	9.43203	.27042	9.43514	.27236	9.43823	.27430	9.44130	.27625	9.44436	.27820	20
41	.43209	.27045 .27048	.43519	.27239	.43828	.27433	.44135	.27628	.44441	.27824	19
42 43	.43214	.27051	.43524 .43529	.27242	.43833 .43838	.27437 .27440	.44141 .44146	.27632 .27635	.44446 .44452	.27830	18 17
+ 11'	9.43224	.27055	9.43535	.27249	9.43843	.27443	9,44151	.27638	9.44457	.27833	16
45	.43229	.27058	.43540	.27252	.43849	.27446	.44156	.27641	.44462	.27837	15
46	.43234	.27061	.43545	.27255	.43854	.27450	.44161	.27645	.44467	.27840	14
47	.43240	.27064	.43550	.27258	.43859	.27453	.44166	.27648	.44472	.27843	13
$+\frac{12'}{49}$	9.43245	.27068 .27071	$9.43555 \\ .43560$.27262 .27265	9.43864 .43869	.27456 .27459	$9.44171 \\ 44176$.27651 .27654	9.44477 .44482	.27846 .27850	12 11
50	.43255	27074	.43565	.27268	.43874	.27463	.44170	.27658	.44487	.27853	10
51	.43260	.27077	.43571	.27271	.43879	.27466	.44187	.27661	.44492	.27856	9
+ 13′	9.43266	.27030	9.43576	.27275	9.43884	.27469	9.44192	.27664	9.44497	.27859	8
53	.43271	.27084	.43581	.27278	.43890	.27472	.44197	.27667	.44502	.27863	7
54 55	.43276 .43281	.27087	.43586	.27281 .27284	.43895	.27476 .27479	.44202	.27671	.44507	.27866 .27869	5
+ 14'	$\frac{.43281}{9.43286}$.27093	9.43596	.27288	9.43905	.27482	$\frac{.44207}{9.44212}$.27677	9.44518	.27873	4
57	.43291	.27097	.43602	.27291	.43910	.27485	.44217	.27680	.44523	.27876	3
58	.43297	.27100	.43607	.27294	.43915	.27489	.44222	.27684	.44528	.27879	2
59	.43302	.27103	.43612	.27297	.43920	.27492	.44227	.27687	.44533	.27882	1
+ 15'	9.43307	.27106	9.43617	.27300	9.43926	.27495	9.44232	.27690	9.44538	.27886	0
	19h	49m	19h	48m	19h	47m	19h	46^m	19h	45m	
Lawrence .			<u> </u>		·		<u> </u>		·		1

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	4h 15m	63° 45′	4h 16m	64° 0′	4h 17m	64° 15′	4h 18m	64° 30′	4h 19m	64° 45′	
s	Log. Hav.	Nat. Hav.	S								
0	9.44538	.27886	9.44842	.28081	9.45144	.28278	9.45446	.28474	9.45745	.28672	60
1	.44543	.27889	.44847	.28085	.45149	.28281	.45451	.28478	.45750	.28675 .28678	59
2 3	.44548	.27892 .27895	.44852 $.44857$.28088 .28091	.45155 .45160	.28284	.45456 $.45461$.28481 .28484	.45755	.28681	58 57
+ 1'	9.44558	.27899	$\frac{.11667}{9.44862}$.28095	9.45165	.28291	9.45466	.28488	9.45765	.28685	56
5	.44563	.27902	.44867	.28098	.45170	.28294	.45471	.28491	.45770	.28688	55
6	.44568	.27905	.44872	.28101	.45175	.28297	.45476	.28494	.45775	.28691	54
7	.44573	.27908	.44877	.28104	.45180	.28301	.45481	.28497	.45780	.28695	53
+ 2'	9.44579	.27912	9.44882	.28108	9.45185	.28304	9.45486	.28501	9.45785	.28698	52
9 10	.44584	.27915 .27918	.44887 .44892	.28111	.45190 .45195	.28307 .28310	.45491 .45496	.28504	.45790 .45795	.28701 .28704	51 50
11	.44594	.27921	.44898	.28117	.45200	.28314	.45501	.28511	.45800	.28708	49
+ 3'	9.44599	.27925	9.44903	.28121	9.45205	.28317	9.45506	.28514	9.45805	.28711	48
13	.44604	.27928	.44908	.28124	.45210	.28320	.45511	.28517	.45810	.28714	47
14	.44609	.27931	.44913	.28127	.45215	.28324	.45516	.28520	.45815	.28718	46
$\frac{15}{+4'}$.44614 9.44619	.27935	$\frac{.44918}{9.44923}$.28130	$\frac{.45220}{9.45225}$.28327	$\frac{.45521}{9.45526}$.28524	$\frac{.45820}{9.45825}$.28721	45 44
$+\frac{4'}{17}$.44624	.27941	.44928	.28137	.45230	.28333	.45531	.28530	.45830	.28727	43
18	.44629	.27944	.44933	.28140	.45235	.28337	.45536	.28534	.45835	.28731	42
19	.44634	.27948	.44938	.28144	.45240	.28340	.45541	.28537	.45840	.28734	41
+ 5'	9.44639	.27951	9.44943	.28147	9.45245	.28343	9.45546	.28540	9.45845	.28737	40
21	.44645	.27954	.44948	.28150	.45250	.28347	.45551	.28543	.45850	.28741	39
22 23	.44650 .44655	.27957 .27961	.44953 .44958	.28153	.45255 $.45260$.28350 .28353	.45556 .45561	.28547 .28550	.45855 .45860	.28744	38 37
+ 6'	9.44660	.27964	9.44963	.28160	$\frac{.15265}{9.45265}$.28356	9.45566	.28553	9.45865	.28751	36
25	.44665	.27967	.44968	.28163	.45270	.28360	.45571	.28557	.45870	.28754	35
26	.44670	.27979	.44973	.28166	.45275	.28363	.45576	.28560	.45875	.28757	34
27	.44675	.27974	.44978	.28170	.45280	.28366	.45581	.28563	.45879	.28760	33
+ 7'	9.44680	.27977 .27980	9.44983 .44988	.28173	$9.45285 \\ .45290$.28369 .28373	$9.45586 \\ .45591$.28566 .28570	9.45884 .45889	.28764 .28767	32 31
30	.44685	.27983	.44993	.28180	.45295	.28376	.45596	.28573	.45894	.28770	30
31	.44695	.27987	.44998	.28183	.45300	.28379	.45601	.28576	.45899	.28774	29
+ 8'	9.44700	.27990	9.45003	.28186	9.45305	.28383	9.45606	.28580	9.45904	.28777	28
33	.44705	.27993	.45009	.28189	.45310	.28386	.45610	.28583	.45909	.28780	27
34	.44710	.27997	.45014	.28193 .28196	.45315	.28389	.45615 .45620	.28586 .28589	.45914	.28783	26 25
$\frac{35}{+9'}$	$\frac{.44715}{9.44721}$.28003	9.45013	.28199	9.45325	.28396	9.45625	.28593	$\frac{.45913}{9.45924}$	28790	24
37	.44726	.28006	.45029	.28202	.45330	.28399	.45630	.28596	.45929	.28793	23
38	.44731	.28010	.45034	.28206	.45335	.28402	.45635	.28599	.45934	.28797	22
39	.44736	.28013	.45039	.28209	.45340	.28406	.45640	.28603	.45939	.28800	21
+ 10	9.44741	.28016	$9.45044 \\ .45049$.28212 .28216	9.45345	.28409 .28412	9.45645 .45650	.28606 .28609	9.45944	.28803 .28807	20 19
41 42	.44746 $.44751$.28019	.45049	.28219	.45350 .45355	.28415	.45655	.28612	.45954	.28810	18
43	.44756	.28026	.45059	.28222	.45360	.28419	.45660	.28616	.45959	.28813	17
+ 11′	9.44761	.28029	9.45064	.28225	9.45365	.28422	9.45665	.28619	9.45964	.28816	16
45	.44766	.28032	.45069	.28229	.45370	.28425	.45670	.28622	.45969	.28820	15
46 47	.44771	.28036 .28039	.45074	.28232 .28235	.45375 .45380	.28429	.45675 .45680	.28626 .28629	.45974	.28823 .28826	14 13
+ 12'	9.44781	.28042	$\frac{.45075}{9.45084}$.28238	9.45385	.28435	9.45685	.28632	9.45984	.28830	12
49	.44786	.28046	.45089	.28242	.45390	.28438	.45690	.28635	.45989	.28833	11
50	.44791	.28049	.45094	.28245	.45395	.28442	.45695	.28639	.45994	.28836	10
51	.44796	.28052	.45099	.28248	.45400	.28445	.45700	.28642	.45999	.28839	9
+ 13'	9.44801	.28055 .28059	9.45104 .45109	.28252 .28255	9.45405	.28448 .28451	9.45705	.28645 .28649	9.46004	.28843 .28846	8
53 54	.44807. .44812	.28062	.45114	.28258	.45415	.28455	.45710	.28652	.46014	.28849	6
55	.44817	.28065	.45119	.28261	.45420	.28458	.45720	.28655	.46019	.28853	5
+ 14'	9.44822	.28068	9.45124	.28265	9.45426	.28461	9.45725	.28658	9.46023	.28856	4
57	.44827	.28072	.45129	.28268	.45431	.28465	.45730	.28662	.46028	.28859	3
58 59	.44832 .44837	.28075 .28078	.45134	.28271	.45436 .45441	.28468 .28471	.45735	.28665 .28668	.46033	.28863 .28866	2
+ 15'	$\frac{.44837}{9.44842}$.28081	$\frac{.45139}{9.45144}$.28278	$\frac{.45441}{9.45446}$.28474	$\frac{.45740}{9.45745}$.28672	9.46043	.28869	$-\frac{1}{0}$
10				1		<u> </u>					
	19h	44m	19h	43m	19 h	42m	19h	41m	19h	40m	

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TABLE 45.

0 9.46043 .28869 9.46340 .29067 9.46635 .29265 9.46929 .29464 9.47222 .29663 6 1 4.6048 .28872 4.6345 .29070 4.6640 .29269 4.0934 .29467 4.7227 .29666 5 2 4.6053 .28876 4.6350 .29074 4.6645 .29272 4.6939 .29471 4.7231 .29670 5 3 4.6058 .28889 4.6350 .29089 9.46655 .29273 4.6939 .29471 4.7231 .29670 5 4 1' 9.46063 .28882 9.46360 .29380 9.46655 .29299 9.46949 .29477 9.47231 .29670 5 5 4.6068 .28889 4.6370 .29308 9.46655 .29299 9.46949 .29477 9.47231 .29670 5 6 4.6073 .28889 4.6370 .29308 4.6665 .29289 4.6964 .29484 4.7246 .29880 5 6 4.6073 .28889 4.6375 .29300 4.6670 .29289 4.6963 .29481 4.7246 .29880 5 7 4.6078 .28899 4.6375 .29300 4.6670 .29289 4.6963 .29481 9.47261 .29863 5 9 4.6088 .28899 4.6384 .29307 4.6680 .29295 4.6957 .29484 4.7276 .29680 5 10 4.6093 .28902 4.6389 .29103 9.46654 .29285 4.6957 .29484 4.7276 .29685 5 11 4.6098 .28989 4.6336 .29103 9.46658 .29295 4.69578 .29481 9.47261 .29690 5 11 4.6098 .28990 4.6689 .29100 4.6688 .29390 4.6988 .29491 9.47261 .29690 5 11 4.6013 .28909 9.46399 .29107 9.46698 .29302 4.6988 .29504 9.47250 .29063 5 13 4.6108 .28912 4.6404 .29110 4.6669 .29305 9.46988 .29504 9.47250 .29703 4 14 4.6113 .28915 4.6640 .29113 4.6704 .29312 4.6998 .29507 4.7250 .29710 4 14 4.6113 .28915 4.6640 .29113 4.6704 .29312 4.0998 .29507 4.7290 .29110 4 14 4.6113 .28915 4.6640 .29113 4.6704 .29312 4.7007 .29517 9.47300 .29110 4 14 4.6113 .28915 4.6414 .29117 4.6709 .29315 4.7003 .29514 4.7290 .29110 4 14 4.6113 .28915 4.6414 .29117 4.6709 .29315 4.7007 .29514 4.7390 .29110 4 14 4.6113 .28915 4.6644 .29113 4.6704 .29324 4.7017 .29524 4.7390 .29123 4 15 4.6167 .28935 4.6434 .29130 4.6714 .29318 9.47007 .29514 4.7390 .29110 4 16 4.6118 .28918 4.6414 .29117 4.6709 .29315 4.7007 .29514 4.7390 .29110 4 17 4.6118 .28918 4.6414 .29117 4.6709 .29315 4.7007 .29514 4.7390 .29133 .29507 4.7390 .29116 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .29110 4.7290 .291		4h 20m	4h 20m 65° 0′	4h 21m	65° 15′	4h 22m	65° 30′	4h 23m	65° 45′	4h 24m	66° 0′]
1 46048 28872 46345 29070 46640 29295 46934 29471 47221 29666 5 3 46053 28879 46355 29077 46655 29275 24694 29474 47231 29670 5 4 1 946063 28889 946350 29080 9.46655 29275 246949 29477 9.47241 29670 5 5 6068 28886 463630 29080 46660 29282 46954 29481 47246 29680 5 6 40073 22889 46384 28907 46660 29282 46959 29484 47261 29600 5 9 46088 28899 46384 29000 46680 29392 46968 29491 47266 29690 5 10 46088 28998 46349 29100 46680 29392 46938 29491 47276 29693 4	s	Log. Hav.	g. Hav. Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
2 46058 22876 46350 22974 46645 229272 46939 229474 47231 229670 5 4 17 9.46068 22888 9.46360 229080 9.46655 22929 9.46949 29477 9.47241 229676 5 5 4.6068 22888 4.6367 229081 4.6660 229285 4.6939 29481 4.7246 22968 5 6 4.6073 23889 4.6377 229081 4.6660 229285 4.6939 29481 4.7251 229683 5 7 4.6073 23882 4.6370 229081 4.6675 22929 2.46933 22889 4.6384 22907 4.6680 229295 4.4993 2.29497 4.7261 229603 5 9 4.6083 2.28892 4.6384 2.29107 4.6684 229395 4.6938 2.29477 4.7261 229603 5 1 4.6043 2.29404 2.2910												60
3 4,0068 28879 4,6635 29077 4,6655 2.29279 2,6494 29477 9,47241 2.29676 5 5 4,0068 2,8886 4,6365 29084 4,6660 2,2928 4,6954 2,9487 9,47241 2,2968 5,6 6 4,0073 2,8889 4,6375 2,9987 4,6660 2,2928 4,6953 2,9444 4,7251 2,9868 5,6 7 7,40088 2,8895 9,6380 2,9903 9,46675 2,9929 4,6663 2,9447 4,7266 2,9969 5,6 9,4668 2,9907 4,7266 2,9929 4,6687 2,9491 9,7266 2,9668 3,7476 2,9003 4,6689 2,9295 4,6697 2,9491 9,7266 2,9693 3,6675 1,94689 2,94697 2,94693 2,9409 4,7276 2,9693 3,6675 2,9903 4,6689 2,9302 4,6983 2,9507 4,7275 2,9700 4,74 4,6141 2,9114 4,6699 2,946												58 58
5 4,6068 22886 4,6365 229044 4,6660 229285 4,6959 229484 47251 229883 5,7 7 4,6073 228892 46375 22909 4,6667 229285 4,6963 229484 47256 22968 5,6 9 4,6088 22899 4,6384 29097 4,6680 229295 4,6973 229491 9,2666 2,26 2,9 10 4,6098 28905 4,6389 29100 4,6684 29293 4,6973 23497 4,7275 22900 4,6689 29103 4,6689 29203 4,6983 23910 4,7275 22900 4,6689 29302 4,6983 23910 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900 4,7275 22900												57
6 46078 22889 46370 29087 46665 29289 46959 22948 47256 29086 5 + 2' 9,46083 28895 9,46380 29093 9,46675 29292 9,46983 29491 9,47261 29666 5 10 46083 28892 46389 29100 46684 29298 46678 29491 47270 29666 5 11 46098 28909 46389 29100 46684 29291 46883 29501 47270 29006 5 13 9,46103 28909 9,46399 29107 9,46694 29305 46988 29501 47285 29700 4 13 9,46103 28912 46409 29113 46694 29315 46908 29507 47285 29700 4 14 46113 28915 44640 29117 46704 29312 46708 29510 47285 29700 4												56
7 46078 28892 46375 29993 9.46670 29292 9.46063 29487 4.7256 29605 5 9 4.6088 2.8889 4.6884 2.9993 9.46675 2.9292 9.46683 2.9491 9.47261 2.9603 5 10 4.6098 2.8989 4.6884 2.9993 4.6684 2.9285 4.6978 2.9497 4.7276 2.9608 5 1 4.6098 2.9955 4.6394 2.9107 9.46684 2.9302 4.6983 2.9504 4.7275 2.9700 4 1.5 4.6103 2.8912 4.6404 2.9110 4.6699 2.9308 4.6983 2.9504 4.7280 2.9708 4.9493 2.9504 4.7280 2.9708 4.9493 2.9504 4.7280 2.9708 4.9493 2.9504 4.7280 2.9708 4.9493 2.9504 4.7280 2.9708 4.9493 2.9504 4.7280 2.9708 4.94780 2.9510 4.7290 2.9108 <												55 54
9 .46088 .28899 .46384 .29907 .46680 .29288 .46978 .29494 .47266 .29605 .511 .46093 .28902 .46394 .29103 .46684 .29288 .46978 .29494 .47270 .29606 .511 4 3 9.46103 .28909 .46394 .29107 9.46684 .29305 .46983 .29504 .47270 .29706 .4 1.3 .46108 .28912 .46404 .29113 .46704 .29308 .46993 .29501 .47285 .29706 .4 1.5 .46118 .28918 .46414 .29117 .46704 .29312 .46993 .29501 .47290 .29713 .4 1.6 9.46123 .28922 .46419 .29120 .946714 .29318 .94700 .29517 .94730 .29713 .4 1.8 .46132 .28928 .46429 .29123 .46719 .29328 .47001 .29254 .47300 .29713												53
10												52
17 46098 2.8905 .46394 .29103 .46689 .29302 .46988 .29501 .47275 .29700 .4 4 3' 9.46103 .28909 9.46394 .29110 .46694 .29305 .46998 .29507 .47285 .29703 .4 14 .46113 .28915 .46404 .29113 .46704 .29312 .46998 .29510 .47290 .29710 .4 15 .46118 .28918 .46414 .29117 .46704 .29312 .46998 .29514 .47290 .29710 .4 7 .46123 .28922 .46419 .29126 .46714 .29318 .947007 .29517 .947300 .29710 .4 18 .46137 .28932 .46434 .29130 .46729 .29328 .47017 .29524 .47304 .29720 .4 19 .46142 .28935 .94649 .29133 .946733 .29328 .49734 .29133												51
+ 3' 9.46103 2.8909 9.46399 2.9107 9.46694 2.9305 9.46983 2.9504 9.47280 2.9703 4.46108 2.8912 4.6404 2.9113 4.6699 2.93308 4.6998 2.9507 4.7280 2.9710 4.56109 2.9113 4.6704 2.9315 4.6998 2.9510 4.7290 2.9710 4.5705 4.6118 2.8918 4.6414 2.9117 4.6709 2.9315 4.7003 2.9514 4.7295 2.9713 4.5705 4.6123 2.8922 9.46419 2.9129 9.46714 2.9318 9.47007 2.9519 4.7300 2.9716 4.5705 4.6123 2.8925 4.6424 2.9123 4.6714 2.9318 9.47007 2.9520 4.7300 2.9716 4.5705 4.6137 2.8932 4.6434 2.9136 4.6724 2.9325 4.7012 2.9522 4.7309 2.9720 4.5705 4.6137 2.8932 4.6434 2.9136 4.6724 2.9325 4.7012 2.9522 4.7314 2.9726 4.5705 4.6147 2.8938 4.6444 2.9136 4.6738 2.9332 9.47027 2.9530 9.47319 2.9730 2.2534 4.6157 2.8945 4.6453 2.9140 4.6743 2.9335 4.7037 2.9537 4.7324 2.9733 3.46739 2.2534 4.6157 2.8945 4.6463 2.9140 4.6743 2.9334 4.7042 2.9540 4.7334 2.9746 3.2546 4.6172 2.8955 4.6463 2.9140 4.6743 2.9335 4.7037 2.9547 4.7334 2.9746 3.2546 4.6172 2.8955 4.6463 2.9150 4.6753 2.9345 9.47066 2.9547 4.7334 2.9746 3.2546 4.6172 2.8955 4.6468 2.9153 4.6763 2.9351 4.7056 2.9557 4.7388 2.9756 3.5766 4.6172 2.8965 4.6483 2.9163 4.6787 2.9355 4.7066 2.9554 4.7335 2.9756 3.5766 4.6172 2.8965 4.6488 2.9166 4.6787 2.9355 4.7066 2.9557 4.7385 2.9756 3.5766 4.6192 2.8986 4.6488 2.9163 4.6787 2.9365 4.7066 2.9557 4.7385 2.9756 3.5766 4.6192 2.8896 4.6488 2.9163 4.6787 2.9355 4.7066 2.9557 4.7387 2.9756 3.5766 4.6192 2.8896 4.6686 2.9173 4.6892 2.93756 4.7066 2.9557 4.7387 2.9756 3.5766 4.6192 2.8896 4.6686 2.9173 4.6892 2.93756 4.7066 2.9557 4.7387 2.9756 3.5766 4.6192 2.8896 4.6686 2.9173 4.6892 2.9385 4.7105 2.9												49
14 46113 228915 46409 29113 46704 29315 46908 29510 A7290 29713 4 + 4' 9.46123 28922 9.46419 29120 9.46714 29315 4.7003 29517 9.47300 29716 4 17' 46128 28928 46424 29120 46714 29318 9.47012 29520 47300 29716 4 18' 46137 28932 46424 29126 46724 29325 47012 29520 47304 29723 4 19' 46137 28932 46439 29133 9.46733 29332 9.47027 29530 9.47314 29723 4 21' 46157 28938 46444 29130 46738 29335 47027 29530 9.47319 29730 4 22' 46152 28948 46448 29140 46743 29338 47037 29534 47334 29740 3							.29305					48
1.5 46118 2.8918 46414 2.9117 46709 2.9315 4.7003 2.9514 4.7255 2.9713 4.4 + 4' 9.46123 2.8925 9.46424 2.9123 3.46719 2.9322 4.7012 2.9520 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.7304 2.9720 4.741 2.9720 4.741 2.9720 4.741 2.9720 4.741 2.9720 4.741 2.9720 4.742 2.9325 4.7017 2.9520 4.7304 2.9720 4.742 2.9325 4.7017 2.9520 4.7334 2.9720 4.742 2.9325 4.7017 2.9520 4.7314 2.9720 4.722 4.7234 2.9723 3.742 2.9163 4.7022 2.9534 4.7324 2.92333 3.7027 4.7334 2.923												47
+ 4' 9.46123 2.8922 9.46419 2.9120 9.46714 2.9318 9.47007 2.9517 9.47300 2.9716 4.418 17 .46128 2.8925 .46429 2.9120 .46724 2.9325 .47012 2.9520 .47304 2.9723 4.7304 2.9723 4.7304 2.9720 4.7304 2.9720 4.7304 2.9723 4.7304 2.9723 4.7304 2.9723 4.7304 2.9723 4.7304 2.9723 4.7304 2.9723 4.7304 2.9723 4.7304 2.9726 4.722 2.9527 .47314 2.9726 4.722 2.9527 .47314 2.9726 4.722 2.9530 9.47319 2.9723 4.722 2.9530 9.47319 2.9726 4.722 2.9530 9.47319 2.9726 4.722 2.9534 9.47319 2.9726 4.7234 2.29335 4.7022 2.9534 4.7319 2.9726 4.7334 2.29333 4.7032 2.9534 4.7324 2.9733 3.2254 4.7412 2.9834												46
177												44
19	17	.46128	6128 .28925	.46424	.29123	46719	.29322	.47012	.29520	.47304	.29720	43.
+ 5′ 9.46142 .28935 9.46439 .29133 9.46733 .29332 9.47027 .29530 9.47319 .29730 4.40147 21 .46147 .28938 .46444 .29136 .46738 .29335 .47037 .29537 .47329 .29736 3.23 23 .46157 .28945 .46458 .29140 .46748 .29341 .47042 .29540 .47334 .29740 .3 25 .46162 .28948 .46458 .29146 .46758 .29348 .47051 .29547 .47338 .29743 .3 26 .46167 .28952 .46463 .29150 .46758 .29331 .47056 .29550 .47348 .29760 .3 27 .46177 .28958 .46473 .29160 .46768 .29355 .47061 .29550 .47348 .29750 .3 29 .46187 .28968 .46488 .29160 .46778 .29361 .47061 .29560 .47												42
21 .46147 .28938 .46444 .29136 .46738 .29355 .47032 .29534 .47324 .29733 .3 22 .46157 .28945 .46458 .29140 .46743 .29335 .47032 .29537 .47329 .29736 .3 + 6' 9.46162 .28948 9.46458 .29146 9.46753 .29345 9.47046 .29544 .947338 .29740 .3 25 .46167 .28955 .46468 .29150 .46768 .29348 .47051 .29547 .47343 .29746 .3 26 .46172 .28955 .46468 .29153 .46763 .29351 .47061 .29554 .47353 .29750 .3 27 .46187 .28965 .46483 .29160 .9.46773 .29358 .9.47066 .29557 .9.47358 .29763 .3 29 .46187 .28965 .46483 .29163 .46782 .29361 .47071 .29560 .47367 .29763 .3 30 .46192 .28978												$\frac{41}{40}$
23 .46157 .28945 .46453 .29143 .46748 .29341 .47042 .29540 .47334 .29740 3 + 6' 9.46162 .28948 9.46458 .29150 .46758 .29348 .47051 .29547 .47338 .29743 3 26 .46177 .28955 .46468 .29153 .46768 .29355 .47061 .29554 .47348 .29750 .3 27 .46177 .28958 .46473 .29166 .46768 .29355 .47061 .29554 .47353 .29753 .3 29 .46187 .28965 .46478 .29163 .46778 .29361 .47071 .29560 .47363 .29766 .3 31 .46197 .28971 .46493 .29169 .46787 .29368 .47081 .29560 .47367 .29763 .3 34 .46197 .28975 9.46498 .29173 .46797 .29375 .47085 .29570 .94737												39
+ 6' 9.46162 2.8948 9.46458 2.9146 9.46753 2.9345 9.47046 2.9544 9.47338 2.29743 36 25 46167 2.8952 46463 2.9150 46758 2.9348 47051 2.9547 47348 2.29750 3. 26 .46172 2.8955 .46463 2.9153 .46763 2.9351 .47056 .29550 .47348 .29750 3. 27 .46177 .28968 .46478 .29160 9.46773 .29358 9.47066 .29557 9.47358 .29756 3. 29 .46187 .28965 .46483 .29163 .46782 .29365 .47071 .29560 .47363 .29760 3. 30 .46192 .28968 .46488 .29169 .46782 .29365 .47071 .29560 .47363 .29760 .2 31 .46202 .28978 .46503 .29169 .46787 .29371 .947085 .29570 .947377 </th <th></th> <th>38</th>												38
25 .46167 .28952 .46463 .29150 .46758 .29348 .47051 .29547 .47343 .29746 3.266 .46172 .28955 .46468 .29153 .46763 .29351 .47061 .29550 .47348 .29750 3.27 4 7 9.46182 .28961 9.46778 .29160 9.46773 .29358 9.47066 .29557 9.47358 .29750 3.3 29 .46187 .28965 .46483 .29160 .46778 .29361 .47071 .29560 .47363 .29760 3.3 30 .46192 .28968 .46488 .29169 .46787 .29368 .47076 .29564 .47367 .29766 .3 31 .46197 .28971 .46498 .29173 .946792 .29371 .47090 .29570 .47377 .29766 .23 33 .46217 .28981 .46508 .29179 .46802 .29378 .47090 .29573 .47387	-											37
26 .46172 .28955 .46468 .29153 .46763 .29351 .47056 .29550 .47348 .29750 3. 27 .46177 .28958 .46473 .29156 .46768 .29355 .47061 .29554 .47353 .29753 3. + 7' 9.46187 .28965 .46483 .29160 .46778 .29361 .47071 .29560 .47363 .29766 3. 50 .46197 .28961 .46483 .29166 .46782 .29365 .47076 .29560 .47363 .29763 3. 51 .46197 .28971 .46493 .29169 .46787 .29368 .47081 .29567 .47372 .29766 2. 33 .46207 .28978 .46508 .29173 .466792 .29371 .47090 .29573 .47382 .29770 2. 35 .46217 .28985 .46512 .29183 .46807 .29381 .47100 .29583 .94737												36 35
+ 7' 9.46182 .28961 9.46478 .29160 9.46773 .29358 9.47066 .29557 9.47358 .29766 3.29760 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.29770 3.2977		.46172	6172 .28955									34
29 .46187 .28965 .46483 .29163 .46778 .29361 .47071 .29560 .47363 .29760 3.9 30 .46192 .28968 .46488 .29166 .46782 .29365 .47076 .29564 .47367 .29763 3.6 4 6197 .28975 .46493 .29169 .46787 .29368 .47081 .29567 .47372 .29766 .29763 .36 33 .46207 .28978 .46503 .29176 .46797 .29375 .47090 .29573 .47382 .29773 .27 34 .46212 .28981 .46508 .29179 .46802 .29378 .47090 .29577 .47387 .29776 .29 35 .46217 .28985 .46512 .29186 .946812 .29385 .47105 .29580 .47397 .29773 .29 37 .46226 .28991 .46527 .29183 .46812 .29385 .47105 .29583												33
30 .46192 .28968 .46488 .29166 .46782 .29365 .47076 .29564 .47367 .29763 36 31 .46197 .28971 .46493 .29169 .46787 .29368 .47081 .29567 .47372 .29766 23 + 8' 9.46202 .28978 .46508 .29173 9.46797 .29375 .47090 .29573 .47387 .29776 23 34 .46212 .28981 .46508 .29179 .46802 .29378 .47095 .29577 .47387 .29776 23 35 .46217 .28985 .46512 .29183 .46807 .29381 .47100 .29580 .47392 .29776 23 37 .46222 .28981 .46521 .29183 .46817 .29385 .47115 .29583 .47397 .29783 2.29779 .23 38 .46231 .28994 .46522 .29183 .46827 .29384 .47110 .29587												32
31 .46197 .28971 .46493 .29169 .46787 .29368 .47081 .29567 .47372 .29766 .2333 + 8' 9.46202 .28978 9.46498 .29173 9.46792 .29371 9.47085 .29570 9.47377 .29770 .29373 .47090 .29573 .47387 .29770 .29375 .47090 .29577 .47387 .29770 .29375 .47095 .29577 .47387 .29776 .29381 .4609 .29378 .47095 .29577 .47387 .29776 .29385 .46217 .28985 .46512 .29183 .46807 .29381 .47100 .29580 .47392 .29773 .29779 .29387 .47100 .29580 .47392 .29779 .29383 .47100 .29580 .47392 .29779 .29383 .47110 .29587 .47401 .29783 .29783 .29383 .47110 .29587 .47401 .29786 .29383 .47110 .29587 .47401 .29786 .29383												30
38 .46207 .28978 .46503 .29176 .46797 .29375 .47090 .29573 .47382 .29773 27 34 .46212 .28981 .46508 .29179 .46802 .29378 .47095 .29577 .47387 .29776 .29381 35 .46217 .28985 .46512 .29186 .94812 .29385 .947105 .29583 .47392 .29773 .29783 37 .46226 .28981 .46522 .29189 .46817 .29385 .47110 .29583 .947397 .29783 .29783 .37 .46226 .28991 .46522 .29189 .46817 .29388 .47110 .29587 .47401 .29786 .2938 .49110 .29587 .47401 .29786 .2938 .49110 .29587 .47401 .29786 .2938 .49110 .29590 .47406 .29789 .2938 .49110 .29593 .47411 .29793 .29411 .4112 .29593 .47411						.46787					.29766	29
34 .46212 .28981 .46508 .29179 .46802 .29378 .4795 .29577 .47387 .29776 .2935 .46217 .28985 .46512 .29183 .46807 .29381 .47100 .29580 .47392 .29776 .29779 .23 + 9' 9.4622 .28988 9.46517 .29189 .46812 .29385 9.47105 .29583 9.47397 .29783 2.37 .46226 .28991 .46527 .29189 .46812 .29385 .47110 .29587 .47406 .29789 .29789 .38 .46231 .28994 .46527 .29193 .46822 .29391 .47115 .29590 .47406 .29789 .29789 .29394 .47120 .29593 .47411 .29789 .29789 .29408 .46246 .29004 .46542 .29202 .46836 .29401 .47129 .29600 .47421 .29796 .29404 .47129 .29600 .47421 .29799 .15442 .29404 .47134 .												28
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												26
37 .46226 .28991 .46522 .29189 .46817 .29388 .47110 .29587 .47401 .29786 2.388 .46231 .28994 .46527 .29193 .46822 .29391 .47115 .29590 .47406 .29789 .2388 .47110 .29597 .47406 .29789 .2388 .47120 .29593 .47411 .29793 .29793 .29394 .47120 .29597 .47411 .29793 .29793 .29401 .47124 .29597 .47411 .29793 .29401 .47124 .29597 .47416 .29799 .29401 .47124 .29597 .47416 .29799 .29401 .47124 .29597 .47416 .29799 .29401 .47124 .29500 .474216 .29799 .29414 .47134 .29603 .47426 .29803 .29414 .47134 .29603 .47426 .29803 .29414 .47134 .29603 .47426 .29803 .29414 .47144 .29610 .47435 .29806 .29434	35		6217 .28985		.29183	.46807						25
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												24
39 .46236 .28998 .46532 .29196 .46827 .29394 .47120 .29593 .47411 .29793 2 + 10' 9.46241 .29001 9.46537 .29199 9.46831 .29398 9.47124 .29597 9.47416 .29796 26 41 .46246 .29004 .46542 .29202 .46836 .29401 .47129 .29600 .47421 .29799 16 42 .46251 .29008 .46552 .29209 .46846 .29404 .47134 .29603 .47426 .29803 .47426 .29803 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47431 .29806 .47441 .29610												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												21
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												20
43 .46256 .29011 .46552 .29209 .46846 .29408 .47139 .29607 .47431 .29866 7.7 + 11' 9.46261 .29014 9.46557 .29212 9.46851 .29411 9.47144 .29610 9.47435 .29809 7.6 45 .46266 .29017 .46562 .29216 .46856 .29414 .47149 .29613 .47440 .29813 1.2 46 .46271 .29021 .46567 .29219 .46861 .29418 .47159 .29610 .47440 .29813 1.2 47 .46276 .29021 .46571 .29222 .46861 .29421 .47159 .29620 .47450 .29816 1.2 + 12' 9.46281 .29027 .246576 .29226 9.46871 .29424 9.47163 .29623 .947455 .29823 1.2 49 .46286 .29031 .46581 .29929 .46875 .2428 .47168 .29627												19
+ 11' 9.46261 .29014 9.46557 .29212 9.46851 .29411 9.47144 .29610 9.47435 .29809 16 45 .46266 .29017 .46562 .29216 .46856 .29414 .47149 .29613 .47440 .29813 .29813 .29813 .47440 .29813 .29818 .47154 .29617 .47445 .29816 .29816 .29816 .29818 .47159 .29620 .47450 .29816 .29818 .47159 .29620 .47450 .29816 .29816 .29826 .47159 .29620 .47450 .29819 .29818 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .47168 .29623 .47460 .29826 .29826 .29826 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828 .29828												18 17
46 .46271 .29021 .46567 .29219 .46861 .29418 .47154 .29617 .47445 .29816 1.47445 .29816 1.47450 .29819 1.46571 .29222 .46866 .29421 .47159 .29620 .47450 .29819 1.56 .29819 1.56 .29819 .29819 1.56 .29819 1.56 .29819 .29823 .29823 .29824 .47163 .29623 .47455 .29823 .29826 .29826 .29826 .29826 .29826 .29826 .29826 .29826 .29827 .47460 .29829 .29829 .29829 .29829 .29829 .29829 .29829	+ 11′	9.46261	6261 .29014	9.46557	.29212	9.46851	.29411	9.47144	.29610	9.47435	.29809	16
47 .46276 .29024 .46571 .29222 .46866 .29421 .47159 .29620 .47450 .29819 .29829												15
+ 12' 9.46281 .29027 9.46576 .29226 9.46871 .29424 9.47163 .29623 9.47455 .29823 12 49 .46286 .29031 .46581 .29229 .46875 .29428 .47168 .29627 .47460 .29826 11 50 .46291 .29034 .46586 .29232 .46880 .29431 .47173 .29630 .47464 .29829 16												14 13
49 .46286 .29031 .46581 .29229 .46875 .29428 .47168 .29627 .47460 .29826 11 50 .46291 .29034 .46586 .29232 .46880 .29431 .47173 .29630 .47464 .29829 16		9.46281	6281 .29027									12
11.10	49			.46581	.29229	.46875	.29428	.47168	.29627	.47460	.29826	11
51 .46296 .29037 .46591 .29236 .46885 .20434 .47178 .20622 .47460 .20222 .	50 51	.46291 $.46296$.46586 $.46591$.29232 .29236	.46880	.29431 .29434	.47173 .47178	.29630 .29633	.47464 .47469	.29829 .29833	10
1 404 0 40001												8
58 .46305 .29044 .46601 .29242 .46895 .29441 .47188 .29640 .47479 .29839	53	.46305	6305 .29044	.46601	.29242	.46895	.29441	.47188	.29640	.47479	.29839	7
												6
11000 00000												4
57 .46325 .29057 .46621 .29255 .46915 .29454 .47207 .29653 .47498 .29853	57	.46325	6325 .29057	.46621	.29255		.29454					3
58 46330 29060 46626 29259 46919 29457 47212 29657 47503 29856 2					.29259				.29657	.47503	.29856	2
												$\frac{1}{0}$
	' 40									0.47015	•%3003	U
19h 39m 19h 38m 19h 37m · 19h 36m 19h 35m		19h ;	19h 39m	19h ,	38m	19h ;	$g\gamma m$	· 19h	36m	19h ,	35m	

	4h 25m 66° 15′		4h 26m 66° 30′		4h 27m 66° 45'		4h 28m 67° 0'		4h 29m 67° 15'		
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.47513	.29363	9.47803	.30063	9.48091	.30263	9.48378	.30463	9.48664	.30664	60
1	.47518	.29866	.47807	.30066	.48096	.30266	.48383	.30467	.48668	.30668	59
2 3	.47523 .47527	.29869 .29873	.47812 .47817	.30069 .30073	.48101 .48105	.30269	.48387	.30470 .30473	.48673 .48678	.30671	58
+ 1'	9.47532	.29876	9.47822	.30076	9.48110	.30276	9.48397	.30477	$\frac{.48678}{9.48683}$.30675 .30678	$\frac{57}{56}$
5	.47537	.29879	.47827	.30079	.48115	30280	.48402	.30480	.48687	.30681	55
6	.47542	.29883	.47831	.30083	.48120	.30283	.48407	.30484	.48692	.30685	54
7	.47547	.29886	.47836	.30086	.48124	.30286	.48411	.30487	.48697	.30688	53
+ 2/	9.47552 .47556	.29889 .29893	9.47841 .47846	.30089 .30093	9.48129 $.48134$.30290	9.48416	.30490 .30494	9.48702 .48706	.30691 .30695	52 51
10	.47561	.29896	.47851	.30096	.48139	.30296	.48426	.30497	.48711	.30698	50
11	.47566	.29899	.47856	.30099	.48144	.30300	.48430	.30500	.48716	.30701	49
+ 3'	9.47571	.29903	9.47860	.30103	9.48148	.30303	9.48435	.30504	9.48720	.30705	48
13	.47576	.29906	.47865	.30106	.48153	.30306	.48440	.30507	.48725	.30708	47
14 15	.47581 .47585	.29909 .29913	.47870 .47875	.30109 .30113	.48158 .48163	.30310	.48445	.30510	.48730 .48735	.30711	46 45
+ 4'	9.47590	.29916	9.47880	.30116	9.48168	.30316	9.48454	.30517	9.48739	.30718	44
17	.47595	.29919	.47884	.30119	.48172	.30329	.48459	.30520	.48744	.30721	43
18	.47600	.29923	.47889	.30123	.48177	.30323	.48464	.30524	.48749	.30725	42
19	.47605	.29926	.47894	.30126	.48182	-30326	.48468	.30527	.48754	.30728	41
+ 5'	9.47610 .47614	.29929 .29933	9.47899 .47904	.30129 .30133	9.48187 $.48192$.30330 .30333	9.48473 .48478	.30530 .30534	9.48758 .48763	.30732 .30735	40 39
22	.47619	.29936	.47908	.30136	.48196	.30336	.48483	.30537	.48768	.30738	38
23	.47624	.29939	•47913	.30139	.48201	.30340	.48488	.30540	.48773	.30742	37
+ 6'	9.47629	.29943	9.47918	.30143	9.48206	.30343	9.48492	.30544	9.48777	.30745	36
25 26	.47634 .47639	.29946 .29949	.47923 .47928	.30146 .30149	.48211 .48215	.30346 .30350	.48497	.30547 .30551	.48782 .48787	.30748	35
27	.47643	.29953	.47933	.30153	.48220	.30353	.48502	.30554	.48792	.30752 .30755	34 33
+ 7'	9.47648	.29956	9.47937	.30156	9.48225	.30356	9.48511	.30557	9.48796	.30758	32
29	.47653	.29959	.47942	.30159	.48230	.30360	.48516	.30561	.48801	.30762	31
30	.47658	.29963	.47947	.30163	.48235	.30363	.48521	.30564	.48806	.30765	30
$\frac{31}{+8'}$	$\frac{.47663}{9.47668}$.29966	$\frac{.47952}{9.47957}$.30166	.48239 9.48244	.30366	$\frac{.48526}{9.48530}$.30567	$\frac{.48811}{9.48815}$.30768	29 28
33	.47672	.29973	.47961	.30173	.48249	.30373	.48535	.30574	.48820	.30775	27
34	.47677	.29976	.47966	.30176	.48254	.30376	.48540	.30577	.48825	.30779	26
35	.47682	.29979	.47971	.30179	.48258	.30380	.48545	.30581	.48830	.30782	25
+ 9	9.47687	.29983	9.47976	.30183 .30186	9.48263	.30383	9.48549	.30584	9.48834	.30785	24
37 38	.47692 .47697	.29986 .29989	.47981 .47985	.30189	.48268	.30386	.48554	.30587 .30591	.48839 .48844	.30789 .30792	23
39	.47701	.29993	.47990	.30193	.48278	.30393	.48564	.30594	.48848	.30795	21
+ 10'	9.47706	.29996	9.47995	.30196	9.48282	.30397	9.48568	.30597	9.48853	.30799	20
41	.47711	.29999	.48000	.30199	.48287	.30400	.48573	.30601	.48858	.30802	19
. 42 43	.47716 $.47721$.30003 .30006	.48005 .48009	.30203 .30206	.48292 .48297	.30403	.48578	.30604	.48863 .48867	.30805 .30809	18 17
+ 11'	9.47725	.30009	9.48014	.30209	9.48302	.30410	9.48587	.30611	9.48872	.30812	16
45	.47730	.30013	.48019	.30213	.48306	.30413	.48592	.30614	.48877	.30815	15
46	.47735	.30016	.48024	.30216	.48311	.30417	.48597	.30618	.48882	.30819	14
$\frac{47}{+12'}$	$\frac{.47740}{9.47745}$.30019	$\frac{.48029}{9.48033}$	$\frac{.30219}{.30223}$.48316	30420	.48602	.30621	.48886	30822	13 12
49	.47750	.30026	.48038	.30226	9.48321 .48325	.30423 .30427	9.48607 .48611	.30624 .30628	9.48891 .48896	.30826 .30829	12 11
50	.47754	.30029	.48043	.30229	.48330	.30430	.48616	30631	.48901	.30832	10
51	.47759	.30033	.48048	.30233	.48335	.30433	.48621	.30634	.48905	.39836	9
+ 13'	9.47764	.30036 .30039	9.48053	.30236 .30239	9.48340	.30437	9.48626 .48630	.30638 .30641	9.48910 .48915	.30839	8
53 54	.47769 .47774	.30043	.48057 .48062	.30243	.48344	.30440 .30443	.48635	.30644	.48919	.30842 .30846	6
55	.47778	.30046	.48067	.30246	.48354	.30447	.48640	.30648	.48924	.30849	5
+ 14'	9.47783	.30049	9.48072	.30249	9.48359	.30450	9.48645	.30651	9.48929	.30852	4
57	.47788	.30053	.48077	.30253	.48364	.30453	.48649	.30655	.48934	.30856	3
58 59	.47793 .47798	.30056 .30059	.48081 .48086	.30256 .30259	.48368	.30457 .30460	.48654 .48659	.30658 .30661	.48938 .48943	.30859 .30862	2
+ 15'	9.47803	.30963	9.48091	.30263	9.48378	.30463	9.48664	.30664	9.48948	.30866	0
	19h 34m		19h.33m		19h 32m		19h 31m		19h 30m		
											-

TABLE 45.

	4h 30m	67° 30′	4h 31m	67° 45′	4h 32m	68° 0′	4h 33m	68° 15′ ·	4h 34m	68° 30′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
0	9.48948	.30866	9.49231	.31068	9.49512	.31270	9.49793	.31472	9.50072	.31675	60
1 2	.48953 $.48957$.30869 .30873	.49235	.31071 .31074	.49517 .49522	.31273 .31276	.49797 $.49802$.31475 .31479	.50076 .50081	.31678 .31682	59 58
3	.48962	.30876	.49245	.31078	.49526	.31280	.49807	.31482	.50085	.31685	57
+ 1'	9.48967	.30879	9.49250	.31081	9.49531	.31283	9.49811	.31486	9.50090	.31688	56
5 · 6	.48971 .48976	.30883 .30886	.49254 $.49259$.31084 .31088	.49536 .49540	.31287 .31290	.49816 $.49821$.31489 .31492	.50095	.31692 .31695	55 54
7	.48981	.30889	.49264	.31091	.49545	.31293	.49825	.31496	.50104	.31699	53
+ 2/	9.48986	.30893	9.49268	.31095	9.49550	.31297	9.49830~	.31499	9.50109	.31702	52
9 10	.48990 .48995	.30896 .30899	.49273 .49278	.31098 .31101	.49554 .49559	.31300 .31303	.49835 .49839	.31503 .31506	.50113 .50118	.31705 .31709	51 50
11	.49000	.39903	.49282	.31105	.49564	.31307	.49844	.31509	.50123	.31712	49
+ 3'	9.49004	.30906	9.49287	.31108	9.49568	.31310	9.49849	.31513	9.50127	.31716	48
13 14	.49009 .49014	.30910 .30913	.49292 .49297	.31111 .31115	.49573	.31314	.49853 .49858	.31516 .31519	.50132 .50136	.31719 .31722	47 46
15	.49019	.30916	.49301	.31118	.49583	.31320	.49862	.31523	.50141	.31726	45
+ 4	9.49023	.30920	9.49306	.31121	9.49587	.31324	9.49867	.31526	9.50146	.31729	44
17 18	.49028 .49033	.30923 .30926	.49311	.31125 .31128	.49592 .49597	.31327 .31330	.49872 .49876	.31530 .31533	.50150 .50155	.31732 .31736	43 42
19	.49038	.30930	.49320	.31132	.49601	.31334	.49881	.31536	.50160	.31739	41
+ 5'	9.49042	.30933	9.49325	.31135	9.49606	.31337	9.49886	.31540	9.50164	.31742	40
21 22	.49047 .49052	.30936 .30940	.49329 .49334	.31138 .31142	.49611	.31341 .31344	.49890 .49895	.31543 31546	.50169 $.50174$.31746 .31749	39 38
23	.49056	.30943	.49339	.31145	.49620	.31347	.49900	.31550	.50178	.31753	37
+ 6'	9.49061	.30946	9.49344	.31148	9.49625	.31351	9.49904	.31553	9.50183	.31756	36
25 26	.49066 .49071	.30950 .30953	.49348	.31152 .31155	.49629 .49634	.31354 .31357	.49909 .49914	.31557 .31560	.50187 $.50192$.31760 .31763	35 34
27	.49075	.30957	.49358	.31158	.49639	.31361	.49918	.31563	.50197	.31766	33
+ 7/	9.49080	.39960	9.49362	.31162	9.49643	.31364	9.49923	.31567	9.50201	.31770	32
29 30	.49085	.30963 .30967	.49367 .49372	.31165 .31169	.49648	.31367 .31371	.49928 .49932	.31570 .31573	.50206 .50211	.31773 .31776	31 30
31	.49094	.30970	.49376	.31172	.49657	.31374	.49937	.31577	.50211	.31780	29
+ 8'	9.49099	.30973	9.49381	.31175	9.49662	.31378	9.49942	.31580	9.50220	.31783	28
33 34	.49104 .49108	.30977 .30980	.49386 .49390	.31179 .31182	.49667 .49671	.31381 .31384	.49946 .49951	.31584 .31587	.50224 $.50229$.31787	27 26
35	.49113	.30983	.49395	.31185	.49676	.31388	.49956	.31590	.50234	.31793	25
+ 9'	9.49118	.30987	9.49400	.31189	9.49681	.31391	9.49960	.31594	9.50238	.31797	24
37 38	.49122 $.49127$.30990 .30994	.49405	.31192 *.31196	.49685 .49690	.31394 .31398	.49965 .49969	.31597 .31601	.50243 .50248	.31800 .31804	23
.39	.49132	.30997	.49414	.31199	.49695	.31401	.49974	.31604	.50252	.31807	21
+ 10′	9.49137	.31000	9.49419	.31202	9.49699	.31405	9.49979	.31607	9.50257	.31810	20
41 42	.49141 .49146	.31004 .31007	.49423	.31206 .31209	.49704	.31408 .31411	.49983 .49988	.31611	.50261 .50266	.31814	19 18
43	.49151	.31010	.49433	.31212	.49713	.31415	.49993	.31617	.50271	.31820	17
+ 11'	9.49155	.31014	9.49437	.31216	9.49718	.31418	9.49997	.31621	9.50275	.31824	16
45 46	.49160 .49165	.31017 .31020	.49442	.31219 .31222	.49723 .49727	.31421 .31425	.50002 .50007	.31624 .31628	.50280 .50284	.31827	15
47	.49170	.31024	.49451	.31226	.49732	.31428	.50007	.31631	.50289	.31834	14 13
+ 12'	9.49174	.31027	9.49456	.31229	9.49737	.31432	9.50016	.31634	9.50294	.31837	12
49 50	.49179 $.49184$.31031 .31034	.49461 .49465	.31233 .31236	.49741 .49746	.31435 .31438	.50021 .50025	.31638 .31641	.50298 .50303	.31841 .31844	11
51	.49188	.31037	.49470	.31239	.49751	.31442	.50023	.31644	.50308	.31848	10
+ 13′	9.49193	.31041	9.49475	.31243	9.49755	.31445	9.50034	.31648	9.50312	.31851	8
53 54	.49198	.31044 .31047	.49480 .49484	.31246 .31249	.49760	.31448	.50039	.31651	.50317	.31854	7
55	.49202	.31051	.49489	.31253	.49765 .49769	.31452 .31455	.50044	.31655 .31658	.50322 .50326	.31858 .31861	6 5
+ 14'	9.49212	.31054	9.49494	.31256	9.49774	.31459	9.50053	.31661	9.50331	.31865	4 3
57 58	.49217	.31057 .31061	.49498 .49503	.31260 .31263	.49779	.31462	.50058	.31665	.50335	.31868	
59	.49221	.31064	.49508	.31266	.49783 .49788	.31465	.50062 .50067	.31668 .31672	.50340 .50345	.31871	2
+ 15'	9.49231	.31068	9.49512	.31270	9.49793	.31472	9.50072	.31675	9.50349	.31878	0
	19h	29m	19h	28m	19h	27m	. 19h	26m	19h	25m	

177	4h 35m	68° 45′	4h 36m	69° 0′	4h 37m	69° 15′	4h 38m	69° 30′	4h 39m	69° 45′	
8	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.		Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.50349 .50354	.31878 .31881	9.50626 .50630	.32082 .32085	$9.50901 \\ .50905$.32285 .32289	9.51174 .51179	.32490 .32493	9.51447 .51452	.32694 .32698	60 59
2	.50358	.31885	.50635	.32088	.50910	.32292	.51184	.32496	.51456	.32701	58
+ 1'	$\frac{.50363}{9.50368}$.31888 .31892	$\frac{.50639}{9.50644}$.32092 .32095	50914 9.50919	.32296	$\frac{.51188}{9.51193}$.32500 .32503	$\frac{.51461}{9.51465}$.32704	$\frac{57}{56}$
5	.50372	.31895	.50649	.32099	.50924	.32302	.51197	.32507	.51470	.32711	55 55
$\begin{array}{c c} 6 \\ 7 \end{array}$.50377	.31898 .31902	.50653	.32102 .32105	.50928	.32306 .32309	.51202	.32510	.51474	.32715 .32718	54 53
+ 2'	9.50386	.31905	9.50662	.32109	9.50937	.32313	9.51211	.32517	9.51483	.32721	52
9 10	.50391 .50395	.31909	.50667 $.50672$.32112	.50942 .50946	.32316 .32319	.51215 .51220	.32520 .32524	.51488	.32725 .32728	51 50
11	.50400	.31915	50676	.32119	.50951	.32323	.51225	.32527	.51497	.32732	49
+ 3'	9.50405 .50409	.31919	$9.50681 \\ .50685$.32122 .32126	9.50956	.32326 .32330	9.51229 .51234	.32531 .32534	$9.51501 \\ .51506$.32735 .32738	48 47
14	.50414	.31926	.50690	.32129	50965	.32333	.51238	.32537	.51510	.32742	46
$\frac{15}{+4'}$	$\frac{.50418}{9.50423}$.31929	$\frac{.50694}{9.50699}$.32133	$\frac{.50969}{9.50974}$.32336	$\frac{.51243}{9.51247}$.32541	$\frac{.51515}{9.51519}$.32745	45
17	.50428	.31936	.50704	.32139	.50978	.32343	.51252	.32547	.51524	.32752	43
18 19	.50432	.31939 .31942	.50708 .50713	.32143 .32146	.50983 .50988	.32347 .32350	.51256 .51261	.32551 .32554	.51529 .51533	.32756 .32759	42 41
+ 5'	9.50442	.31946	9.50717	.32150	9.50992	.32353	9.51265	.32558	9.51538	.32762	40
21 22	.50446 .50451	.31949 .31953	.50722 $.50727$.32153 .32156	.50997 .51001	.32357 .32360	.51270 .51275	.32561 .32565	.51542 .51547	.32766 .32769	39 38
23	.50455	.31956	.50731	.32160	.51006	.32364	.51279	.32568	.51551	.32773	37
+ 6' 25	9.50460 .50465	.31959 .31963	9.50736 .50740	.32163 .32166	$9.51010 \\ .51015$.32867	9.51284	.32571	9.51556	.32776	36
26	.50469	.31966	.50745	.32170	.51019	.32370 .32374	.51288 $.51293$.32575 .32578	.51560	.32779	35 34
+ 7'	$\frac{.50474}{9.50478}$.31970	$\frac{.50750}{9.50754}$.32173	$\frac{.51024}{9.51029}$.32377	.51297	.32582	.51569	.32786	33
29	.50483	.31976	•50759	.32177 .32180	.51033	.32381 .32384	9.51302 .51306	.32585 .32588	9.51574	.32790 .32793	32 31
30 31	.50488 .50492	.31980 .31983	.50763 .50768	.32183 .32187	.51038 $.51042$.32388 .32391	.51311 .51315	.32592 .32595	.51583 .51587	.32797	30
+ 8'	9.50497	.31987	9.50772	.32190	9.51047	.32394	$\frac{.51313}{9.51320}$.32599	9.51592	.32800	29 28
33 34	.50501 .50506	.31990 .31993	.50777 .50782	.32194 .32197	.51051	.32398	.51325	.32602	.51596	.32807	27
35	.50511	.31997	.50786	.32200	.51056 .51061	.32401 .32405	.51329	.32605 .32609	.51601 .51605	.32810 .32814	26 25
+ 37	9.50515 .50520	.32000 .32004	9.50791 .50795	.32204 .32207	9.51065	.32408	9.51338	.32612	9.51610	.32817	24
38	.50524	.32007	.50800	.32211	.51070 .51074	.32411 .32415	.51343 .51347	.32616 .32619	.51614 .51619	.32820 .32824	23 22
$\frac{39}{+10'}$	$\frac{.50529}{9.50534}$.32010 .32014	.50805 9.50809	.32214	.51079	.32418	.51352	.32623	.51623	.32827	21
41	.50538	.32017	.50814	.32217 .32221	$9.51083 \\ .51088$.32422 .32425	$9.51356 \\ .51361$.32626 .32629	$9.51628 \\ .51633$.32831 .32834	20 19
42 43	.50543 .50547	.32021 .32024	.50818 .50823	.32224 .32228	.51092	.32428	.51365	.32633	.51637	.32838	18
+ 11'	9.50552	.32027	9.50827	.32231	$\frac{.51097}{9.51102}$.32432	$\frac{.51370}{9.51374}$.32636	$\frac{.51642}{9.51646}$.32841	17 16
45 46	.50557 .50561	.32031 .32034	.50832 .50837	32235 -32238	.51106 .51111	.32438 .32442	.51379	.32643	.51651	.32848	15
47	.50566	.32037	.50841	.32241	.51115	.32445	.51384	.32646 .32650	.51655 .51660	.32851 .32855	14 13
+ 12 ′	9.50570 .50575	.32041 .32044	9.50846 50850	.32245	9.51120 .51124	.32449	9.51393	.32653 .32657	9.51664 .51669	.32858 .32861	12
50	.50580	.32048	.50855	.32251	.51129	.32456	.51397 .51402	.32660	.51673	.32865	11 10
$\frac{51}{+13'}$	$\frac{.50584}{9.50589}$.32051 .32054	$\frac{.50860}{9.50864}$.32255	$\frac{.51133}{9.51138}$.32459	.51406	.32663	.51678 9.51682	.32868	9
53	.50593	.32058	.50869	.32262	.51143	.32462 .32466	9.51411 .51415	.32670	.51687	.32872 .32875	8
54 55	.50598 .50603	.32061 .32065	.50873 .50878	.32265 .32268	.51147 .51152	.32469 .32473	.51420 .51424	.32674	.51691 .51696	.32878 .32882	6 5
+ 14'	9.50607	.32068	9.50862	.32272	9.51156	.32476	9.51429	.32681	9.51700	.32885	$-\frac{3}{4}$
57 58	.50612 .50616	.32071 .32075	.50887 .50892	.32275 .32279	.51161	.32479 .32483	.51433	.32684 .32687	.51705 .51709	.32889 .32892	3
59	.50621	.32078	.50896	.32282	.51170	.32486	.51438 .51442	.32691	.51714	.32896	2
+ 15′	9.50626	.32082	9.50901	.32285	9.51174	.32490	9.51447	.32694	9.51718	.32899	0
	19h	24m	19h	23m ·	19h	22m	19h	₹1m	19h g	20m	

	4h 40m	70° 0′	Ah A1m	70° 15′	4h 49m	70° 30′	4h 49m	70° 45′	4h 44m	71° 0′	
s		Nat. Hav.			Log. Hav.	,		Nat. Hav.		Nat. Hav.	s
0	9.51718	.32899	9.51988	.33104	9.52257	.33310	9.52525	.33515	9.52791	.33722	60
1	.51723	.32902	.51993	.33108 .33111	.52261	.33313	.52529	.33519 .33522	.52795 $.52800$.33725 .33728	59 58
2 3	.51727	.32906 .32909	.51997 .52002	.33114	.52266 $.52270$.33317	.52533 .52538	.33526	.52804	.33732	57
+ 1'	9.51736	.32913	9.52006	.33118	9.52275	.33323	9.52542	.33529	9.52809	.33735	56
5	.51741	.32916	.52011	.33121	.52279	.33327	.52547	.33533	.52813	.33739	55
6 7	.51745	.32920 .32923	.52015 .52020	.33125	.52284 .52288	.33330	.52551 .52556	.33536 .33540	.52817 $.52822$.33742	54 53
+ 2'	$\frac{0.51750}{9.51754}$.32926	9.52024	.33132	9.52293	.33337	9.52560	.33543	9.52826	.33749	$\frac{53}{52}$
9	.51759	.32930	.52029	.33135	.52297	.33341	.52565	.33546	.52831	.33753	51
10	.51763	.32933	.52033	.33138	.52302	.33344	.52569	.33550	.52835	.33756	50
$\frac{11}{+3'}$	$\frac{.51768}{9.51772}$.32937	$\frac{.52038}{9.52042}$.33142	$\frac{.52306}{9.52311}$.33347	$\frac{.52573}{9.52578}$.33553	•52839 9.52844	.33759	$\frac{49}{48}$
13	.51777	.32943	.52042	.33149	.52315	.33354	.52582	.33560	.52848	.33766	47
14	.51781	.32947	.52051	.33152	.52320	.33358	.52587	.33564	.52853	.33770	46
15	.51786	.32950	.52056	.33156	.52324	.33361	.52591	.33567	.52857	.33773	45
+ 4'	9.51790 .51795	.32954	$9.52060 \\ .52065$.33159 .33162	9.52328 .52333	.33365 .33368	9.52596 $.52600$.33570 .33574	9.52862 $.52866$.33777 .33780	44 43
18	.51799	.32961	.52069	.33166	.52337	.33371	.52605	.33577	.52870	.33783	42
19	.51804	.32964	.52074	.33169	.52342	.33375	.52609	.33581	.52875	.33787	41
+ 5'	9.51808	.32967	9.52078	.33173	9.52346	.33378	9.52613	.33584	9.52879	.33790	40
21 22	.51813 .51817	.32971 .32974	.52082 .52087	.33176 .33179	.52351 .52355	.33382	.52618 $.52622$.33588 .33591	.52884 .52888	.33794	39 38
23	.51822	.32978	.52091	.33183	.52360	.33389	.52627	.33594	.52893	.33801	37
+ 6	9.51826	.32981	9.52096	.33186	9.52364	.33392	9.52631	.33598	9.52897	.33804	36
25	.51831	.32984	.52100	.33190	.52369	.33395	.52636	.33601	.52901	.33808 .33811	35 34
26 27	.51835 .51840	.32988 .32991	.52105 .52109	.33193 .33197	.52378	.33399 .33402	.52640 .52645	.33605 .33608	.52906 $.52910$.33814	33
+ 7'	9.51844	.32995	9.52114	.33200	9.52382	.33406	9.52649	.33612	9.52915	.33818	32
29	.51849	.32998	.52118	.33203	.52386	.33409	.52653	.33615	.52919	.33821	31
30 31	.51853	.33002 .33005	.52123 $.52127$.33207 .33210	.52391 $.52395$.33413	.52658	.33618	•52923 •52928	.33825 .33828	30 29
+ 8'	9.51862	.33008	9.52132	.33214	9.52400	.33419	9.52667	.33625	$\frac{0.52323}{9.52932}$.33832	28
33	.51867	.33012	.52136	.33217	.52404	.33423	.52671	.33629	.52937	.33835	27
34	.51871	.33015	.52141	.33221	.52409	.33426	.52676	.33632	.52941	.33839	26
$\frac{35}{+9}$	$\frac{.51876}{9.51880}$.33019	$\frac{.52145}{9.52150}$.33224	.52413 9.52418	.33430	$\frac{.52680}{9.52684}$.33636	$\frac{.52946}{9.52950}$.33842	$\frac{25}{24}$
37 .	.51885	.33025	.52154	.33231	.52422	.33436	.52689	.33642	.52954	.33849	23
3 8	.51889	.33029	.52159	.33234	.52427	.33440	.52693	.33646	.52959	.33852	22
39	.51894	.33032	.52163	.33238	.52431	.33444	.52698	.33649	.52963	.33856	21
+ 10' 41	9.51898 .51903	.33036 .33039	$9.52168 \\ .52172$.33241 .33245	9.52436 .52440	.33447 .33450	$9.52702 \\ .52707$.33653 .33656	$9.52968 \\ .52972$.33859 .33863	20 19
42	.51907	.33043	.52177	.33248	.52444	.33454	.52711	.33660	.52976	.33866	18
43	.51912	.33046	.52181	.33251	.52449	33457	.52715	.33663	.52981	.33869	17
+ 11' 45	$9.51916 \\ .51921$.33049	9.52185 .52190	.33255 .33258	9.52453 .52458	.33461 .33464	$9.52720 \\ .52724$.33667 .33670	$9.52985 \\ .52990$.33873 .33876	16 15
46	.51925	.33056	.52194	.33262	.52462	.33467	.52729	.33673	.52994	.33880	14
47	.51930	.33060	.52199	.33265	.52467	.33471	.52733	.33677	.52999	.33883	13
+ 12'	9.51934	.33063	9.52203	.33269	9.52471	.33474		.33680	9.53003	.33887	12
49 50	.51939 .51943	.33067 .33070	.52208 .52212	.33272 .33275	.52476 .52480	.33478 .33481	.52742	.33684 .33687	.53007 .53012	.33890 .33894	11 10
51	.51948	.33073	.52217	.33279	.52484	.33485	.52751	.33691	.53016	.33897	9
+ 13′	9.51952	.33077	9.52221	.33282	9.52489	.33488	9.52755	.33694	9.53021	33900	8
53 54	.51957 .51961	.33080 .33084	.52226 .52230	.33286 .33289	.52493 .52498	.33491	.52760	.33698	.53025	.33904	7
55	.51966	.33087	.52235	.33293	.52502	.33495 .33498	.52764	.33701 .33704	.53029	.33911	6 5
+ 14'	9.51970	.33090	9.52239	.33296	9.52507	.33502	9.52773	.33708	9.53038	.33914	4
57	.51975	.33094	.52244	.33299	.52511	.33505	.52778	.33711	.53043	.33918	3
58 59	.51979 .51984	.33097	.52248 .52253	.33303 .33306	.52516 $.52520$.33509 .33512	.52782 .52786	.33715 .33718	.53047 .53051	.33921 .33925	2 1
+ 15'	9.51988	.33104	9.52257	.33310	9.52525	.33515	$\frac{.52780}{9.52791}$.33722	9.53056	.33928	$\frac{1}{0}$
	19h		19h	<u>'</u>	19h		19h			15m	Ů
	1916	13	1916	10	1916	11"	1916	10,,,	1911	10	

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TABLE 45.

	4h 45m	71° 15′	4h 46m	71° 30′	4h 47m	71° 45′	4h 48m	72° 0′	4h 49m	72° 15′	[
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.53056	.33928	9.53320	.34135	9.53582	.34342	9.53844	.34549	9.54104	.34757	60
$\frac{1}{2}$.53060 .53065	.33931 .33935	.53324 .53328	.34138 .34142	.53587 .53591	.34345 .34349	.53848 $.53852$.34553 .34556	.54108	.34760 .34764	59 58
3	.53069	.33938	.53333	.34145	.53595	.34352	.53857	.34560	.54117	.34767	57
+ 1'	9.53073	.33942	9.53337	.34149	9.53600	.34356	9.53861	.34563	9.54121	.34771	56
5 6	.53078 .53082	.33945 .33949	.53342 .53346	.34152 .34155	.53604 .53609	.34359 .34363	.53865 .53870	.34566 .34570	.54126 .54130	.34774 .34778	55 54
7	.53087	.33952	.53350	.34159	.53613	.34366	.53874	.34573	.54134	.34781	53
+ 2'	$9.53091 \\ .53096$.33956 .33959	9.53355 .53359	.34162 .34166	$9.53617 \\ .53622$.34369 .34373	9.53879 .53883	.34577 .34580	9.54139 .54143	.34784 .34788	52 51
10	.53100	.33962	.53364	.34169	.53626	.34376	.53887	.34584	.54147	.34791	50
11	.53104	.33966	.53368	.34173	.53630	.34380	.53892	.34587	.54152	.34795	49
+ 3'	$9.53109 \\ .53113$.33969 .33973	9.53372 .53377	.34176 .34180	9.53635 $.53639$.34383 .34387	9.53896	.34591 .34594	$9.54156 \\ .54160$.34798 .34802	48 47
14	.53118	.33976	.53381	.34183	.53643	.34390	.53905	.34598	.54165	.34805	46
$\frac{15}{+4'}$.53122 9.53126	.33980	.53385	34186	.53648	34394	.53909	.34601	.54169	34812	45
$+\frac{4'}{17}$	$9.53126 \\ .53131$.33983 .33986	$9.53390 \\ .53394$.34190 .34193	$9.53652 \\ .53657$.34397 .34400	$9.53913 \\ .53918$.34604 .34608	9.54173 .54177	.34812 .34816	44 43
18	.53135	.33990	.53399	.34197	.53661	.34404	.53922	.34611	.54182	.34819	42
$\frac{19}{+5}$	$\frac{.53140}{9.53144}$.33993	$\frac{.53403}{9.53407}$.34200	$\frac{.53665}{9.53670}$.34407	$\frac{.53926}{9.53931}$.34615	$\frac{.54186}{9.54190}$.34823	41
21	.53148	.34000	.53412	.34207	.53674	.34414	.53935	.34622	.54195	.34830	39
22	.53153	.34004	.53416	.34211	.53678	.34418	.53939	.34625	.54199	.34833	38
$\frac{23}{+6'}$	$\frac{.53157}{9.53162}$.34007	$\frac{.53421}{9.53425}$.34214 .34218	$\frac{.53683}{9.53687}$.34421	.53944 9.53948	.34629	$\frac{.54203}{9.54208}$.34836 .34840	37
25	.53166	.34014	.53429	.34221	.53691	.34428	.53952	.34636	.54212	.34843	35
26 27	.53170 .53175	.34018 34021	.53434	.34224 .34228	.53696	.34432 .34435	.53957	34639	.54216 .54221	.34847	34
$\frac{z_{1}}{+7'}$	9.53179	.34021	$\frac{.53438}{9.53442}$.34231	$\frac{.53700}{9.53704}$.34439	$\frac{.53961}{9.53966}$.34643	$\frac{.54221}{9.54225}$.34850	32
29	.53184	.34028	.53447	.34235	.53709	.34442	.53970	.34649	.54229	.34857	31
30 31	.53188 .53192	.34031 .34035	.53451 .53456	.34238 .34242	.53713 .53718	.34445 .34449	.53974 .53978	.34653 .34656	.54234 .54238	.34861 .34864	30 29
+ 8'	9.53197	.34038	9.53460	.34245	9.53722	.34452	9.53983	.34660	9.54242	.34868	28
33	.53201	.34042	.53464	.34249	.53726	.34456	.53987	.34663	.54247	.34871	27
34 35	.53206 .53210	.34045 .34049	.53469 .53473	.34252 .34256	.53731 .53735	.34459 .34463	.53991 .53 99 6	.34667 .34670	.54251 .54255	.34875 .34878	26 25
+ 9'	9.53214	.34052	9.53477	.34259	9.53739	.34466	9.54000	.34674	9.54260	.34882	24
37 38	.53219 .53223	.34055 .34059	.53482 .53486	.34262 .34266	.53744 .53748	.34470 .34473	.54004	.34677	.54264 .54268	.34885 .34888	23
39	.53228	.34059	.53486	.34269	.53752	.34477	.54009 .54013	.34681 .34684	.54268	.34888	22
+ 10′	9.53232	.34066	9.53495	.34273	9.53757	.34480	9.54017	.34688	9.54277	.34895	20
41 42	.53236 .53241	.34069 .34073	.53499 .53504	.34276 .34280	.53761 .53765	.34483 .34487	.54022 .54026	.34691 .34694	.54281 .54285	.34899 .34902	19 18
43	.53245	.34076	.53508	.34283	.53770	.34490	.54030	.34698	.54290	.34906	17
+ 11/	9.53249	.34080	9.53512	.34287	9.53774	.34494	9.54035	.34701	9.54294	.34909	16
45 46	.53254 .53258	.34083 .34087	.53517 $.53521$.34290 .34293	.53778 .53783	.34497 .34501	.54039	.34705 .34708	.54298 .54303	.34913 .34916	15 14
47	.53263	.34090	.53526	.34297	.53787	.34504	.54048	.34712	.54307	.34920	13
+ 12' · 49	9.53267 53271	.34093 .34097	9.53530 53534	.34300	$9.53792 \\ .53796$.34508 .34511	9.54052 54056	34715	9.54311 54316	.34923 .34927	12 11
50	.53271 .53276	.34100	.53534 .53539	.34304	.53800	.34511	.54056	.34719 .34722	.54316 .54320	.34930	10
51	.53280	.34104	.53543	.34311	.53805	.34518	.54065	.34726	.54324	.34933	9
+ 13'	$9.53285 \\ .53289$.34107 .34111	9.53547 $.53552$.34314 .34318	$9.53809 \\ .53813$.34521 .34525	9.54069 .54074	.34729 .34733	9.54329 .54333	.34937 .34940	8
54	.53293	.34114	.53556	.34321	.53818	.34528	.54078	.34736	.54337	.34944	6
$\frac{55}{+ 14'}$.53298	34118	.53560	.34325	.53822	.34532	.54082	.34739	.54341	34947	5
+ 14°	9.53302	.34121 .34124	9.53565	.34328 .34331	$9.53826 \\ .53831$.34535 .34539	9.54087 .54091	.34743 .34746	9.54346 .54350	.34951 .34954	3
58	.53311	.34128	.53574	.34335	.53835	.34542	.54095	.34750	.54354	.34958	2
$\frac{59}{+15'}$	$\frac{.53315}{9.53320}$.34131	$\frac{.53578}{9.53582}$.34338	$\frac{.53839}{9.53844}$.34546	$\frac{.54100}{9.54104}$.34753	.54359 9.54363	-34961 -34965	$\frac{1}{0}$
, 20		14m		13m		12m		11m	9.54303 19h		
and report to be a second	1911	7.4	1911	10	1911	14""	1911	11""	1911	10"	

IAD	40.

					Haversii	nes.					
	4h 50m	72° 30′	4h 51m	72° 45′	4h 52m	73° 0′	4h 53m	73° 15′	4 h 54m	73° 30′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.54363	.34965	9.54621	.35173 .35176	$9.54878 \\ .54882$.35381 .35385	9.55133	.35590 .35594	9.55387 .55392	.35799 .35803	60 59
1 2	.54367 $.54372$.34968 .34972	.54625 $.54629$.35180	.54886	.35388	.55137 .55142	.35597	.55396	.35806	58
3 + 1'	$\frac{.54376}{9.54380}$.34975	$\frac{.54634}{9.54638}$.35183	.54890 9.54895	.35392	$\frac{.55146}{9.55150}$.35601 .35604	$\frac{.55400}{9.55404}$	$\frac{.35810}{.35813}$	$\frac{57}{56}$
. 5	.54385	.34982	.54642	.35190	.54899	.35399	.55154	.35608	.55409	.35817	55
6 7	.54389	.34986 .34989	.54647 .54651	.35194 .35197	.54903	.35402	.55159 .55163	.35611 .35615	.55413 .55417	.35820 .35824	54 53
+ 2'	9.54397	.34992	9.54655	.35201	9.54912	.35409	9.55167	.35618	9.55421	.35827	52
9	.54402 .54406	.34996 .34999	.54659 .54664	.35204 .35208	.54916	.35413 .35416	.55171 .55176	.35622 .35625	.55425 .55430	.35831 .35834	51 50
11	.54410	35003	.54668	.35211	.54924	.35420	.55180	.35628	.55434	.35838	49
$+ \frac{3'}{13}$	9.54415 .54419	.35006 .35010	9.54672 $.54677$.35215 .35218	9.54929 .54933	.35423 .35427	$9.55184 \\ .55188$.35632 .35635	9.55438 $.55442$.35841 .35845	48 47
14	.54423	.35013	.54681	.35222	.54937	.35430	.55192	.35639 .35642	.55447 .55451	.35848 .35852	46 45
$\frac{15}{+4'}$	$\frac{.54428}{9.54432}$.35017	$\frac{.54685}{9.54689}$	35225 35228	$\frac{.54942}{9.54946}$.35434	$\frac{.55197}{9.55201}$.35646	9.55455	.35855	44
17 18	.54436 .54440	.35024 .35027	.54694 .54698	.35232 .35235	.54950 .54954	.35441	.55205 .55209	.35649 .35653	.55459 .55463	.35859 .35862	43 42
19	.54445	.35031	.54702	.35239	54959	.35448	.55214	.35656	.55468	.35865	41
+ 5'	9.54449 .54453	.35034 .35038	9.54707 .54711	.35242 .35246	9.54963 .54967	.35451 .35454	9.55218 $.55222$.35660 .35663	9.55472 .55476	.35869 .35872	40 39
22	.54458	.35041	.54715	.35249	.54971	.35458	.55226	.35667	.55480	.35876	38
+ 6'	$\frac{.54462}{9.54466}$.35044	$\frac{.54719}{9.54724}$.35253	$\frac{.54976}{9.54980}$.35461 .35465	$\frac{.55231}{9.55235}$	$\frac{.35670}{.35674}$	$\frac{.55485}{9.55489}$.35879 .35883	$\frac{37}{36}$
25	.54471	.35051	.54728	.35260	.54984	.35468	.55239	.35677	.55493	.35886	35
26 27	.54475	.35055 .35058	.54732 .54736	.35263 .35267	.54988 .54993	.35472 .35475	.55243 .55248	.35681 .35684	.55497 .55501	.35890 .35893	34 33
+ 7'	9.54483	.35062	9.54741	.35270	9.54997	.35479	9.55252	.35688	9.55506	.35897	32
29 30	.54488 .54492	.35065 .35069	.54745 .54749	.35274 .35277	.55001 .55005	.35482 .35486	.55256 .55260	.35691 .35695	.55510 .55514	.35900 .35904	31 30
31	.54496	.35072	.54754	.35281	.55010	.35489	.55265	.35698	.55518	.35907	29
+ 8'	9.54501	.35076 .35079	$9.54758 \\ .54762$.35284 .35288	$9.55014 \\ .55018$.35493 .35496	9.55269 $.55273$.35702 .35705	9.55523 $.55527$.35911 .35914	28 27
34 35	.54509	.35083	.54766	.35291	.55022	.35500	.55277	.35709	.55531	.35918	26
+ 9'	$\frac{.54514}{9.54518}$.35086 .35090	.54771 9. 54775	.35294 .35298	$\frac{.55027}{9.55031}$.35503	$\frac{.55282}{9.55286}$.35712	$\frac{.55535}{9.55539}$.35921 .35925	25
37 38	.54522	.35093	.54779	.35301	.55035	.35510	.55290	.35719	.55544	.35928 .35932	23
39	.54526 .54531	.35097 .35100	.54784	.35305 .35308	.55039 .55044	.35514	.55294 .55298	.35723 .35726	.55548 .55552	.35935	21
+ 10'	9.54535 .54539	.35103	9.54792 .54796	.35312	9.55048	.35521	9.55303	.35730	9.55556	.35939 .35942	20 19
41 42	.54544	.35107 .35110	.54801	.35315 .35319	.55052	.35524 .35528	.55307 .55311	.35733 .35737	.55561 .55565	.35946	18
+ 11'	$\frac{.54548}{9.54552}$.35114	$\frac{.54805}{9.54809}$.35322	$\frac{.55061}{9.55065}$.35531	$\frac{.55315}{9.55320}$.35740	$\frac{.55569}{9.55573}$.35949	$\frac{17}{16}$
45	.54556	.35121	.54813	.35329	.55069	.35538	.55324	.35747	.55577	.35956	15
46 47	.54561 .54565	.35124 .35128	.54818	.35333 .35336	.55074	.35541 .35545	.55328 .55332	.35750 .35754	.55582 .55586	.35960 .35963	14 13
+ 12'	9.54569	.35131	9.54826	.35340	9.55082	.35548	9.55337	.35757	9.55590	.35967	12
49 50	.54574 .54578	.35135 .35138	.54831 .54835	.35343	.55086 .55091	.35552 .35555	.55341 .55345	.35761 .35764	.55594 .55598	.35970 .35974	11 10
51	.54582	.35142	.54839	.35350	.55095	.35559	.55349	.35768	.55603	.35977	9
+ 13' 53	9.54587 $.54591$.35145 .35149	9.54843 .54848	.35354 .35357	9.55099 .55103	.35562 .35566	9.55354 $.55358$.35771	9.55607 $.55611$.35981 .35984	8 7
54	.54595	.35152	.54852	.35361	.55108	.35569	.55362	.35778	.55615	.35988	6
$\frac{-55}{+14'}$	$\frac{.54599}{9.54604}$.35156	$\frac{.54856}{9.54860}$.35364 .35368	$\frac{.55112}{9.55116}$.35576	$\frac{.55366}{9.55370}$.35782	$\frac{.55620}{9.55624}$.35991	- 5 4
57	.54608	.35162	.54865	.35371	.55120	.35580	.55375	.35789	.55628	.35998	3
58 59	.54612 .54617	.35166 .35169	.54869 .54873	.35374 .35378	.55125	.35583 .35587	.55379	.35792	.55632 .55636	.36002 .36005	2
+ 15'	9.54621	.35173	9.54878	.35381	9.55133	.35590	9.55387	.35799	9.55641	.36009	0
	19ħ	9^m	1 9h	8m	19h	7m	· 19h	6^m	19h	5m.	
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TABLE 45.

	4h 55m	73° 45′	4h 56m	74° 0′	4h 57m	74° 15′	4h 58m	74° 30′	4h 59m	74° 45′	1
s	Log. Hav.	Nat. Hav.	3								
0	9.55641	.36009	9.55893	.36218	9.56144	.36428	9.56393	.36638	9.56642	.36848	60
1	.55645	.36012	.55897	.36222	.56148	.36431	.56397	.36642	.56646	.36852	59
2 3	.55649 .55653	.36016 .36019	.55901 .55905	.36225	.56152 .56156	.36435 .36438	.56402 .56406	.36645 .36649	.56650 $.56654$.36855 .36859	58 57
+ 1'	9.55657	.36023	9.55909	.36232	9.56160	.36442	9.56410	.36652	9.56658	.36862	56
5 c	.55662 .55666	.36026 .36030	.55914	.36236	.56164	.36445 .36449	.56414	.36656 .36659	.56663	.36866	55
$rac{6}{7}$.55670	.36033	.55922	.36239 .36243	.56169 .56173	.36452	.56422	.36663	.56667 .56671	.36869	54 53
+ 2'	9.55674	.36036	9.55926	.36246	9.56177	.36456	9.56426	.36666	9.56675	.36877	52
9 10	.55678	.36040 .36043	.55930 .55935	.36250 .36253	.56181 .56185	.36459 .36463	.56431 $.56435$.36670 .36673	.56679	.36880 .36884	51 50
11	.55687	.36047	.55939	.36257	.56189	.36466	.56439	.36677	.56687	.36887	49
+ 3′	9.55691	.36050	9.55943	.36260	9.56194	.36470	9.56443	.36680	9.56692	.36891	48
13 14	.55695 .55699	.36054 .36057	.55947 •55951	.36264 .36267	.56198 $.56202$.36473 .36477	.56447 .56451	.36684 .36687	.56696 .56700	.36894 .36898	47
15	.55704	.36061	.55955	.36271	.56206	.36480	.56456	.36691	.56704	.36901	45
+ 4'	9.55708	.36064	9.55960	.36274	9.56210	.36484	9.56460	.36694	9.56708	.36905	44
17 18	.55712 .55716	.36068 .36071	.55964 .55968	.36278 .36281	.56214	.36487 .36491	.56464 .56468	.36698 .36701	.56712 .56716	.36908 .36912	42
19	.55721	36075	.55972	.36285	.56223	.36494	.56472	.36705	.56720	.36915	41
+ 5'	9.55725	.36078	9.55976	.36288	9.56227	.36498	9.56476	.36708	9.56725	.36919	40
21 22	.55729 .55733	.36082 .36085	.55981	.36292 .36295	.56231 $.56235$.36501 .36505	.56480 .56485	.36712 .36715	.56729 $.56733$.36922	38
23	.55737	.36089	.55989	.36299	.56239	.36508	.56489	.36719	.56737	.36929	37
+ 6'	9.55742	.36092	9.55993	.36302	9.56244	.36512	9.56493	.36722	9.56741	.36933	36
25 26	.55746 .55750	.36096 .36099	.55997	.36306 .36309	.56248 $.56252$.36515 .36519	.56497 .56501	.36726 .36729	.56745	.36936 .36940	33
27	.55754	.36103	.56006	.36313	.56256	.36522	.56505	.36733	.56753	.36943	33
+ 7'	9.55758	.36106	9.56010	.36316	9.56260	.36526	9.56509	.36736	9.56758	.36947	32
29 30	.55763 .55767	.36110 .36113	.56014 .56018	.36320 .36323	.56264 .56269	.36529 .36533	.56514 .56518	.36740 .36743	.56762 .56766	.36950 .36954	30
31	.55771	.36117	.56022	.36327	.56273	.36536	.56522	.36747	.56770	.36957	29
+ 8'	9.55775	.36120	9.56027	.36330	9.56277	.36540	9.56526	.36750	9.56774	.36961	28
33 34	.55779 .55784	.36124 .36127	.56031 .56035	.36334 .36337	.56281 .56285	.36543 .36547	.56530 $.56534$.36754 .36757	.56778 .56782	.36964 .36968	27
35	.55788	.36131	.56039	.36341	.56289	.36551	.56538	.36761	.56786	.36971	25
+ 9'	9.55792	.36134	9.56043	.36344	9.56294	.36554	9.56543	.36764	9.56791	.36975	24
37 38	.55796 .55800	.36138 .36141	.56047 $.56052$.36348 .36351	.56298 .56302	.36558 .36561	.56547 .56551	.36768 .36771	.56795 .56799	.36978 .36982	23
39	.55805	.36145	.56056	.36355	.56306	.36565	.56555	.36775	.56803	.36985	2
+ 10'	9.55809	.36148	9.56060	.36358	9.56310	.36568	9.56559	.36778	9.56807	.36989	20
41 42	.55813 .55817	.36152 .36155	.56064	.36362 .36365	.56314	.36572 .36575	.56563 .56567	.36782 .36785	.56811	.36992	18 18
43	.55821	.36159	.56073	.36368	.56323	.36579	.56572	.36789	.56819	.36999	17
+ 11'	9.55826	.36162	9.56077	.36372	9.56327	.36582	9.56576	.36792	9.56824	.37003	16
45 46	.55830 .55834	.36166 .36169	.56081 .56085	.36376 .36379	.56331 .56335	.36586 .36589	.56580 .56584	.36796 .36799	.56828	.37006 .37010	12
47	.55838	.36173	.56089	.36382	.56339	.36593	.56588	.36803	.56836	.37013	13
+ 12'	9.55842	.36176	9.56093	.36386	9.56343	.36596	9.56592	.36806	9.56840	.37017	12
49 50	.55846	.36180 .36183	.56098	.36389 .36393	.56348	.36600 .36603	.56596	.36810 .36813	.56844	.37020 .37024	11
51	55855	.36187	.56106	.36396	.56356	.36607	.56605	.36817	.56852	.37027	9
+ 13'	9.55859	.36190	9.56110	.36400	9.56360	.36610	9.56609	.36820	9.56856	.37031	8
53 54	.55863	.36194 .36197	.56114	.36403 .36407	.56364 .56368	.36614 .36617	.56613	.36824 .36827	.56861 .56865	.37034 .37038	1
55	55872	.36201	.56123	.36410	.56373	.36621	.56621	.36831	.56869	.37041	
+ 14'	9.55876	.36204	9.56127	.36414	9.56377	.36624	9.56625	.36834	9.56873	.37045	4
57 58	.55880	.36208 .36211	,56131 .56135	.36417 .36421	.56381 .56385	.36628 .36631	.56630 .56634	.36838 .36841	.56877	.37049 .37052	2
59	.55888	.36215	56139	.36424	.56389	.36635	.56638	.36845	.56885	.37055	_1
+ 15′	9.55893	.36218	9.56144	.36428	9.56393	.36638	9.56642	.36848	9.56889	.37059	0
	19h	4m	19h	3m	19h	2m	19h	1m	19h	Om	
											<u> </u>

					Haversii	ies.					
	5h 0m	75° 0′	5h 1m	75° 15′	5h 2m	75° 30′	5h 3m	75° 45′	5h 4m	76° 0′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.56889	.37059	9.57136	.37270	9.57381	.37481	9.57625	.37692	9.57868	.37904	60
1	.56893	.37063	.57140	.37273	.57385	.37485	.57629	.37696	.57872	.37907 .37911	59 58
23	.56898 .56902	.37066 .37070	.57144	.37277	.57389 .57393	.37488	.57633 .57637	.37699 .37703	.57876 .57881	.37914	57
+ 1'	9.56906	.37073	9.57152	.37284	9.57397	.37495	$\frac{.57642}{9.57642}$.37706	$\frac{0.57885}{9.57885}$.37918	56
5	.56910	.37077	.57156	.37287	.57402	.37499	.57646	.37710	.57889	.37922	55
6	.56914	.37080	.57160	.37291	.57406	.37502	.57650	.37713	.57893	.37925	54
$\frac{\gamma}{+2'}$.56918	.37084	$\frac{.57165}{9.57169}$.37295	.57410	.37506	.57654	.37717	.57897	.37929	53 52
+ 2	$9.56922 \\ .56926$.37087 .37091	.57173	.37298 .37302	9.57414 .57418	.37509 .37513	9.57658 $.57662$.37721	9.57901 .57905	.37936	$\frac{3z}{51}$
10	.56931	.37094	.57177	.37305	.57422	.37516	.57666	.37728	.57909	.37939	50
11	.56935	.37098	.57181	.37309	.57426	.37520	.57670	.37731	.57913	.37943	49
+ 3'	9.56939	.37101	9.57185	.37312	9.57430	.37523	9.57674	.37735	9.57917	.37946	48
13 14	.56943 .56947	.37105 .37108	.57189 .5719 3	.37316	.57434 .57438	.37527	.57678 .57682	.37738 .37742	.57921 .57925	.37950 .37953	47 46
15	.56951	.37112	.57197	.37323	.57442	.37534	.57686	37745	.57929	.37957	45
+ 4'	9.56955	.37115	9.57201	.37326	9.57446	.37537	9.57690	.37749	9.57933	.37960	44
17	.56959	.37119	.57205	.37330	.57450	.37541	.57694	.37752	.57937	.37964	43
18 19	.569 63 .569 6 8	.37122 .37126	.57210 .57214	.37333	.57454 .57459	.37544	.57698 .57702	.37756	.57941 .57945	.37967 .37971	42 41
$\frac{13}{+5'}$	9.56972	.37129	$\frac{.57214}{9.57218}$.37340	$\frac{.57459}{9.57463}$.37551	$\frac{.57702}{9.57706}$.37763	$\frac{.57945}{9.57949}$.37974	40
21	.56976	.37133	.57222	.37344	.57467	.37555	.57711	.37766	.57953	.37978	39
22	.56980	.37136	.57226	.37347	.57471	.37558	.57715	.37770	.57957	.37982	38
23	.56984	.37140	.57230	.37351	.57475	.37562	.57719	.37773	.57961	.37985	37
+ 6'	$9.56988 \\ .56992$.37143 .37147	$9.57234 \\ .57238$.37354 .37358	9.57479 .57483	.37566 .37569	9.57723 $.57727$.37777	9.57965 .57969	.37989 .37992	36 35
26	.56996	.37150	.57242	.37361	.57487	.37573	.57731	37784	.57973	.37996	34
27	.57000	.37154	.57246	.37365	.57491	.37576	.57735	.37788	.57977	.37999	33
+ 7	9.57005	.37157	9.57250	.37368	9.57495	.37580	9.57739	.37791	9.57981	.38003	32
29 30	.57009 .570 1 3	.37161 .37164	.57255 .57259	.37372 .37375	.57499	.37583	.57743 .57747	.37794 .37798	.57986 .57990	.38006 .38010	31
31	.57017	.37168	.57263	37379	.57507	.37590	.57751	.37802	.57994	.38013	29
+ 8'	9.57021	.37171	9.57267	.37382	9.57511	.37594	9.57755	.37805	9.57998	.38017	28
33	.57025	.37175	.57271	.37386	.57516	.37597	.57759	.37809	.58002	.38020	27
34 35	.57029 .57033	.37179 .37182	.57275 .57279	.37389	.57520 .57524	.37601	.57763 .57767	.37812	.58006 .58010	.38024	26 25
+ 9'	9.57037	.37186	9.57283	.37397	$\frac{0.57521}{9.57528}$.37608	9.57771	.37819	$\frac{.58013}{9.58014}$.38031	24
37	.57042	.37189	.57287	.37400	.57532	.37611	.57775	.37823	.58018	.38034	23
38	.57046	.37193	.57291	.37404	.57536	.37615	.57779	.37826	.58022	.38038	22
39 + 10 ′	$\frac{.57050}{9.57054}$.37196	$\frac{.57295}{9.57299}$.37407	.57540	.37618	.57783	.37830	.58026	.38042	21
41	.57058	.37203	.57304	.37414	9.57544 .57548	.37622 .37625	9.57787 $.57792$.37833 .37837	9.58030 .58034	.38045 .38049	20 19
42	.57062	.37207	.57308	.37418	.57552	.37629	.57796	.37840	.58038	.38052	18
43	.57066	.37210	.57312	.37421	.57556	.37632	.57800	.37844	.58042	38056	17
+ 11' 45	9.57070 .57074	.37214	9.57316 .57320	.37425 .37428	9.57560 .57564	.37636 .37639	9.57804 .578 08	.37847 .37851	9.58046	.38059	16
46	.57078	.37221	.57324	.37432	.57568	.37643	.57812	.37855	.58050 .58054	.38063 .38066	15 14
47	.57083	.37224	.57328	.37435	.57572	.37647	.57816	.37858	.58058	.38070	13
+ 12'	9.57087	.37228		.37439	9.57577	.37650	9.57820	.37862	9.58062	.38073	12
49 50	.57091 .57095	.37231 .37235	.57336 .57340	.37442 .37446	.57581 .57585	.37654 .37657	.57824 .57828	.37865 .37869	.58066 .58070	.38077 .38080	11
51	.57099	.37238	.57344	.37449	.57589	.37661	.57832	.37872	.58070	.38084	10
+ 13'	9.57103	.37242	9.57348	.37453	9.57593	.37664	9.57836	.37876	9.58078	.38087	8
53	.57107	.37245	.57353	.37456	.57597	.37668	.57840	.37879	.58082	.38091	7
54 55	.57111 .57115	.37249 .37252	.57357 .57361	.37460 .37463	.57601 .57605	.37671 .37675	.57844	.37883 .37886	.58086 .58090	.38095 .38098	6 5
+ 14'	9.57119	.37256	9.57365	.37467	9.57609	.37678	9.57852	.37890	9.58094	.38102	4
57	.57124	.37259	.57369	.37470	.57613	.37682	.57856	.37893	.58098	.38105	3
58 59	.57128	.37263	.57373	.37474	.57617	.37685	.57860	.37897	.58102	.38109	2
+ 15'	$\frac{.57132}{9.57136}$.37266	.57377 9.57381	.37477	$\frac{.57621}{9.57625}$.37689	0.57864	.37900	.58106	.38112	
10						.37692	9.57868	.37904	9.58110	.38116	0
	18h	59m	18h	58m	18h	57m	18h	56m	18h	55m	

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TABLE 45.

	5h 5m '	76° 15′	5h 6m	76° 30′	5h 7m	76° 45′	5h 8m	77° 0′	5h 9m	77° 15′	
8	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.58110	.38116	9.58351	.38328	9.58591	.38540	9.58830	.38752	9.59068	.38965	60
1 2	.58114	.38119 .38123	.58355 .58359	.38331 .38335	.58595 .58599	.38544	.58834	.38756 .38760	.59072 .59076	.38969	59 58
3	.58122	.38126	.58363	.38338	.58603	.38551	.58842	.38763	.59079	.38976	57
+ 1′	9.58126	.38130	9.58367	.38342	9.58607	.38554	9.58846	.38767	9.59083	.38979	56
5 6	.58131 .58135	.38133 .38137	.58371	.38345	.58611 .58615	.38558 .38561	.58850 .58854	.38770	.59087	.38983	55
7	.58139	.38140	.58379	.38352	.58619	.38565	.58858	.38774	.59091	.38990	54 53
+ 2'	9.58143	.38144	9.58383	.38356	9.58623	.38568	9.58862	.38781	9.59099	.38994	52
9 10	.58147 .58151	.38148 .38151	.58387 $.58391$.38360 .38363	.58627 $.58631$.38572	.58866	38784	.59103	.38997	51
11	.58155	.38155	.58395	.38367	.58635	.38579	.58870 .58874	.38788 .38791	.59107	.39001	50
+ 3′	9.58159	.38158	9.58399	.38370	9.58639	.38582	9.58878	.38795	9.59115	.39008	48
13	.58163	.38162	.58403	.38374	.58643	.38586	.58882	.38799	.59119	.39011	47
14 15	.58167 $.58171$.38165 .38169	.58407	.38377 .38381	.58647 .58651	.38590 .38593	.58885	.38802	.59123	.39015 .39018	46 45
+ 4'	9.58175	.38172	9.58415	.38384	9.58655	.38597	9.58893	.38809	9.59131	.39022	44
17	.58179	.38176	.58419	.38388	.58659	.38600	.58897	.38813	.59135	.39025	43
18 19	.58183 .58187	.38179 .38183	.58423	.38391 .38395	.58663 .58667	.38604	.58901	.38816 .38820	.59139 .59143	.39029	42 41
+ 5'	9.58191	.38186	9.58431	.38398	9.58671	.38611	9.58909	.38823	9.59147	.39036	40
21	.58195	.38190	.58435	.38402	.58675	.38614	.58913	.38827	.59151	.39040	39
22 23	.58199 .58203	.38193 .38197	.58439	.38406 .38409	.58679 .58683	.38618 .38621	.58917 .58921	.38830 .38834	.59155	.39043	38 37
+ 6'	9.58207	.38200	9.58447	.38413	9.58687	.38625	$\frac{0.58921}{9.58925}$.38837	9.59162	.39050	36
25	.58211	.38204	.58451	.38416	.58691	.38628	.58929	.38841	.59166	.39054	35
26 27	.58215 .58219	.38208 .38211	.58455	.38420 .38423	.58695 .58699	.38632	•58933 •58937	.38845 .38848	.59170	.39057	34 33
+ 7/	9.58223	.38215	9.58463	.38427	$\frac{.58333}{9.58703}$.38639	9.58941	.38852	9.59178	.39064	32
29	.58227	.38218	.58467	.38430	.58707	.38643	.58945	.38855	.59182	.39068	31
30 31	.58231 $.58235$.38222 .38225	.58471 .58475	.38434 .38437	.58711 .58715	.38646 .38650	.58949	.38859 .38862	.59186 .59190	.39072	30 29
+ 8'	9.58239	.38229	9.58479	.38441	9.58719	.38653	9.58957	.38866	9.59194	.39079	28
33	.58243	.38232	.58483	.38444	.58723	.38657	.58961	.38869	.59198	.39082	27
34 35	.58247	.38236 .38239	.58487 $.58491$.38448 .38451	.58727 .58731	.38660 .38664	.58965 .58969	.38873 .38876	.59202 .59206	.39086 .39089	26
+ 9'	9.58255	.38243	9.58495	.38455	$\frac{.58731}{9.58735}$.38667	9.58973	.38880	9.59210	.39093	25
37	.58259	.38246	.58499	.38459	.58739	.38671	.58977	.38884	.59214	.39096	23
38 39	.58263 $.58267$.38250 $.38254$.58503	.38462 .38466	.58742	.38675	.58981	.38887 .38891	.59218	.39100 .39103	22 21
+ 10′	$\frac{.58267}{9.58271}$.38257	9.58511	.38469	9.58750	.38682	$\frac{.58989}{9.58989}$.38894	$\frac{0.59222}{9.59225}$.39107	$\frac{z_1}{20}$
41	.58275	.38261	.58515	.38473	.58754	.38685	.58992	.38898	.59229	.39111	19
42 43	.58279 .58283	.38264 .38268	.58519	.38476 .38480	.58758	.38689	.58996	.38901	.59233	.39114	18
+ 11'	$\frac{.58283}{9.58287}$.38271	9.58527	.38483	$\frac{.58762}{9.58766}$.38692 .38696	$\frac{.59000}{9.59004}$.38908	$\frac{.59237}{9.59241}$.39118	$\frac{17}{16}$
45	.58291	.38275	.58531	.38487	.58770	.38699	.59008	.38912	.59245	.39125	15
46 47	.58295	.38278 .38282	.58535	.38490 .38494	.58774 .58778	.38703	.59012	.38915 .38919	.59249	.39128 .39132	14
+ 12'	9.58303	.38285	9.58543	.38498	$\frac{.58778}{9.58782}$.38706	$\frac{.59016}{9.59020}$.38923	$\frac{.59255}{9.59257}$.39135	13
49	.58307	.38289	.58547	.38501'	.58786	.38713	.59024	.38926	.59261	.39139	11
50 51	.58311 .58315	.38292 .38296	.58551 .58555	.38505 .38508	.58790 .58794	38717	.59028	.38930	.59265	.39143 .39146	10
+ 13'	$\frac{0.58315}{9.58319}$.38299	9.58559	.38512	$\frac{.58794}{9.58798}$.38721	$\frac{.59032}{9.59036}$.38933	$\frac{.59269}{9.59273}$.39150	8
53	.58323	.38303	.58563	.38515	.58802	.38728	.59040	.38940	.59277	.39153	7
54 55	.58327	.38307 .38310	.58567	.38519 .38522	.58806 .58810	.38731	.59044	38944	.59281	.39157	6
+ 14'	9.58335	.38314	$\frac{.58571}{9.58575}$.38526	$\frac{.58810}{9.58814}$.38735 .38738	$\frac{.59048}{9.59052}$.38947	$\frac{.59285}{9.59289}$.39160 .39164	- 5 4
57	.58339	.38317	.58579	.38529	.58818	.38742	.59056	.38954	.59292	.39167	3
58 59	.58343	.38321	.58583	.38533	.58822	.38745	.59060	.38958	.59296	.39171	2
+ 15'	$\frac{.58347}{9.58351}$.38324	$\frac{.58587}{9.58591}$	$\frac{.38536}{.38540}$	$\frac{.58826}{9.58830}$.38749	$\frac{.59064}{9.59068}$.38962	$\frac{.59300}{9.59304}$.39174 .39178	$\frac{1}{0}$
,						<u></u>					
	18h	54m	18h	53m	18h	52m	18h	51m	18h	50m	

_	5h 10m	77° 30′	5h 11m	77° 45′	5h 12m	78° 0′	5h 13m	78° 15′	5h 14m	78° 30′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.59304	.39178	9.59540	.39391	9.59774	.39604	9.60008	.39818	9.60240	.40032	60
1	.59308	.39182	.59544	.39395	.59778 •59782	.39608	.60012	.39821 .39825	.60244 .60248	.40035 .40039	59 58
2 3	.59312 .59316	.39185 .39189	.59548 .59552	.39398 .39402	.59786	.39612 .39615	.60016	.39829	.60252	.40042	57
+ 1'	9.59320	.39192	9.59556	.39405	9.59790	.39619	9.60023	.39832	9.60256	.40046	56
5	.59324	.39196	.59559	.39409	.59794	.39622	.60027	.39836	.60260	.40049	55
6 7	.59328	.39199 .39203	.59563 .59567	.39412 .39416	.59798 .59802	.39626 .39629	.60031 .60035	.39839 .39843	.60263 .60267	.40053	54 53
+ 2'	9.59336	.39206	9.59571	.39420	9.59806	.39633	9.60039	.39846	9.60271	.40060	52
9	.59340	.39210	.59575	.39423	.59809	.39636	.60043	.39850	.60275	.40064	51
10	.59344	.39214	.59579	.39427	.59813	.39640	.60047	39854	.60279	.40067 .40071	50
$\frac{11}{+3'}$	$\frac{.59348}{9.59351}$	$\frac{.39217}{.39221}$	$\frac{.59583}{9.59587}$.39430 .39434	$\frac{.59817}{9.59821}$.39644	$\frac{.60051}{9.60054}$	$\frac{.39857}{.39861}$	$\frac{.60283}{9.60287}$.40074	49 48
13	.59355	.39224	.59591	.39437	.59825	.39651	.60058	.39864	.60291	.40078	47
14	.59359	.39228	.59595	.39441	.59829	.39654	.60062	.39868	.60294	.40081	46
15	.59363	.39231	.59599	.39444	.59833	.39658	$\frac{.60066}{9.60070}$.39871	.60298	.40085 .40089	45
+ 4'	9.59367 $.59371$.39235 .39238	9.59602 .59606	.39448 .39451	9.59837 .59841	.39661 .39665	.60074	.39878	9.60302	.40092	44 43
18	.59375	.39242	.59610	.39455	.59845	.39668	.60078	.39882	.60310	.40096	42
19	.59379	.39245	.59614	.39459	.59848	.39672	.60082	.39886	.60314	.40099	41
+ 5'	9.59383 .59387	.39249 .39253	$9.59618 \\ .59622$.39462 .39460	9.59852 $.59856$.39676 .39679	9.60085	.39889 .39893	9.60318 .60321	.40103 .40106	40 39
22	.59391	.39256	.59626	.39469	.59860	.39683	.60093	.39896	.60325	.40110	38
23	.59395	.39260	.59630	.39473	.59864	.39686	.60097	.39900	.60329	.40114	37
+ 6'	9.59399	.39263	9.59634	.39476	9.59868	.39690	9.60101	.39903	9.60333	.40117	36
25 26	.59403 .59406	.39267 .39270	.59638 .59642	.39480 .39484	.59872 .59876	.39693 .39697	.60105	.39907 .39910	.60337 .60341	.40121 .40124	35 34
27	.59410	.39274	.59646	.39487	.59880	.39700	.60113	.39914	.60345	.40128	33
+ 7'	9.59414	.39277	9.59649	.39491	9.59883	.39704	9.60116	.39918	9.60348	.40131	32
29 30	.59418	.39281 .39285	.59653	.39494 .39498	.59887 .59891	.39708 .39711	.60120 .60124	.39921 .39925	.60352 .60356	.40135 .40139	31
31	.59426	.39288	.59661	.39501	.59895	.39715	.60124	.39928	.60360	.40143	29
+ 8'	9.59430	.39292	9.59665	.39505	9.59899	.39718	9.60132	.39932	9.60364	.40146	28
33	.59434	.39295	.59669	.39508	.59903	.39722	.60136	.39935	.60368	.40149	27
34 35	.59438	.39299 .39302	.59673 .59677	.39512 .39516	.59907 $.59911$.39725 .39729	.60140 .60144	.39939 .39943	.60372 .60375	.40153 .40156	26 25
+ 9'	9.59446	.39306	9.59681	.39519	9.59915	.39732	9.60147	.39946	9.60379	.40160	24
37	.59450	.39309	.59685	.39523	.59918	.39736	.60151	.39950	.60383	.40163	23
38 39	.59454	.39313	.59688	.39526 .39530	.59922	.39739 .39743	.60155 .60159	.39953 .39957	.60387 .60391	.40167	22 21
+ 10'	9.59461	.39320	9.59696	.39533	$\frac{.03320}{9.59930}$.39746	$\frac{0.00103}{9.60163}$.39960	9.60395	.40174	20
41	.59465	.39324	.59700	.39537	.59934	.39750	.60167	.39964	.60399	.40178	19
42 43	.59469	.39327	.59704	.39540	.59938	.39754	.60171	.39967	.60402	.40181	18
+ 11'	9.59477	.39331	$\frac{.59708}{9.59712}$.39544 .39548	$\frac{.59942}{9.59946}$.39757	$\frac{.60175}{9.60178}$.39971	$\frac{.60406}{9.60410}$.40185	17
45	.59481	.39338	.59716	.39551	.59950	.39765	.60182	.39978	.60414	.40192	15
46	.59485	.39341	.59720	.39555	.59953	39768	.60186	.39982	.60418	.40196	14
$\frac{47}{+12'}$	$\frac{.59489}{9.59493}$.39345	$\frac{.59724}{9.59728}$.39558 .39562	$\frac{.59957}{9.59961}$.39772	$\frac{.60190}{9.60194}$.39985 .39989	$\frac{.60422}{9.60426}$.40199	$\frac{13}{12}$
49	.59497	.39352	.59731	.39565	.59965	.39779	.60198	.39992	.60429	.40206	
50	.59501	.39356	.59735	.39569	.59969	.39782	.60202	.39996	.60433	.40210	10
$\frac{51}{+13'}$	$\frac{.59505}{9.59508}$.39359	.59739	.39572	.59973	.39786	.60206	.40009	.60437	.40213	.9
+ 13° 53°	.59512	.39363 .39366	9.59743 .59747	.39576 .39580	9.59977 .59981	.39789	9.60209 .60213	.40003 .40007	$9.60441 \\ .60445$.40217 .40220	8 7
54	.59516	.39370	.59751	.39583	.59985	.39796	.60217	.40010	.60449	.40224	6
55	.59520	.39373	.59755	.39587	.59988	.39800	.60221	.40014	.60452	.40228	5
+ 14'	9.59524 .59528	.39377 .39380	9.59759 .59763	.39590 .39594	9.59992 .59996	.39803 .39807	9.60225 .60229	.40017 .40021	9.60456 .60460	.40231 .40235	3
58	.59532	.39384	.59767	.39597	.60000	.39811	.60223	.40021	.60464	.40238	2
59	.59536	.39388	.59770	.39601	.60004	.39814	.60236	.40028	.60468	.40242	1
+ 15'	9.59540	.39391	9.59774	.39604	9.60008	.39818	9.60240	.40032	9.60472	.40245	0
	18h	49m	18h	48m	18h	47m	18h	46 ^m	18h	45^m	

	Eh 15m	78° 45′	5h 1cm	79° 0′	5h 17m	79° 15′	5h 10m	79° 30′	5h 10m	79° 45′	_
s	Log. Hav.		Log. Hav.		J	Nat. Hav.					s
I			l								60
0	9.60472 .60476	.40245 .40249	9.60702 .60706	.40460 .40463	9.60931	.40674 .40677	9.61160 .61164	.40888 .40892	9.61387 .61391	.41103 .41106	59
2	.60479	.40253	.60710	.40467	.60939	.40681	.61167	.40895	.61395	.41110	58
3	.60483	.40256	.60714	.40470	.60943	.40685	.61171	.40899	.61399	.41114	57
+ 1'	9.60487	.40260	9.60717	.40474	9.60947	.40688	9.61175	.40903	9.61402	.41117	56
5	.60491	.40263	.60721	.40477	.60951	.40692	.61179	.40906	.61406	.41121	55
6	.60495	.40267	.60725	.40481	.60954	.40695	.61183	.40910	.61410	.41124	54
7	.60499	.40270	.60729	.40485	.60958	.40699	.61186	.40913	.61414	.41128	53
+ 2'	9.60502	.40274	9.60733	.40488 .40492	9.60962	.40702 .40706	9.61190	.40917 .40920	9.61417	.41131 .41135	52 51
10	.60506 .60510	.40281	.60737 .60740	.40492	.60966	.40710	.61194	.40924	.61425	.41139	50
11	.60514	.40285	.60744	.40499	.60973	.40713	.61202	.40928	.61429	.41142	49
+ 3'	9.60518	.40288	9.60748	.40502	9.60977	.40717	9.61205	.40931	9.61433	.41146	48
13	.60522	.40292	.60752	.40506	.60981	.40720	.61209	.40935	.61436	.41149	47
14	.60526	.40295	.60756	.40510	.60985	.40724	.61213	.40938	.61440	.41153	46
15	.60529	.40299	.60760	.40513	.60989	.40727	.61217	.40942	.61444	.41156	45
+ 4'	9.60533	.40303 .40306	9.60763 .60767	.40517 .40520	9.60992	.40731 .40735	$9.61221 \\ .61224$.40945 .40949	9.61448 .61451	.41160 .41164	44
17 18	.60537 .60541	.40310	.60771	.40524	.60996 .61000	.40738	.61224 .61228	.40953	.61455	.41167	43
19	.60545	.40313	.60775	.40527	.61004	.40742	.61232	.40956	.61459	41171	41
+ 5'	9.60549	.40317	9.60779	.40531	9.61008	.40745	9.61236	.40960	9.61463	.41174	40
21	.60552	.40320	.60783	.40535	.61012	.40749	.61240	.40963	.61467	.41178	39
22	.60556	.40324	.60786	.40538	.61015	40752	.61243	.40967	.61470	.41182	38
23	.60560	.40328	.60790	.40542	.61019	.40756	.61247	.40970	.61474	.41185	37
+ 6'	9.60564	.40331	9.60794	.40545	9.61023	.40760	9.61251	40974	9.61478	.41189 .41192	36
25 26	.60568 .60572	.40335 .40338	.60798 .60802	.40549 .40552	.61027 $.61031$.40763 .40767	.61255 .61258	.40978 .40981	.61482 .61485	.41196	35 34
27	.60576	.40342	.60805	.40556	.61034	40770	.61262	.40985	.61489	.41199	33
+ 7	9.60579	.40345	9.60809	.40560	9,61038	.40774	9.61266	.40988	9.61493	.41203	32
29	.60583	.40349	.60813	.40563	.61042	.40777	.61270	.40992	.61497	.41207	31
30	.60587	.40352	.60817	.40567	.61046	.40781	.61274	.40996	.61500	.41210	30
31	.60591	.40356	.60821	.40570	.61050	.40785	.61277	.40999	.61504	.41214	29
+ 8'	9.60595 .60599	.40360 .40363	9.60825 $.60828$.40574 .40577	$9.61053 \\ .61057$.40788 .40792	9.61281 .61285	.41003 .41006	9.61508 $.61512$.41217 .41221	28 27
34	.60602	.40367	.60832	.40581	.61061	.40795	.61289	.41010	.61516	.41225	26
35	.60606	.40370	.60836	.40585	.61065	.40799	.61293	.41013	.61519	.41228	25
+ 9'	9.60610	.40374	9.60840	.40588	9.61069	.40802	9.61296	.41017	9.61523	.41232	24
37	.60614	.40377	.60844	.40592	.61072	.40806	.61300	.41021	.61527	.41235	23
38	0.60618 0.60622	.40381	.60847	.40595	.61076	.40810	.61304 .61308	.41024	.61531	.41239 .41242	22
+ 10 ′	$\frac{.00622}{9.60625}$.40385 .40388	$\frac{.60851}{9.60855}$.40599 .40602	$\frac{.61080}{9.61084}$.40813	9.61312	.41028	$\frac{.61534}{9.61538}$.41246	21
+ 10 ⁷	.60629	.40392	.60859	.40606	.61088	.40820	.61315	.41035	.61542	.41250	19
42	.60633	.40395	.60863	.40610	.61091	.40824	.61319	.41039	.61546	.41253	18
43	.60637	.40399	.60867	.40613	.61095	.40827	.61323	.41042	.61549	.41257	17
+ 11'	9.60641	.40402	9.60870	.40617	9.61099	.40831	9.61327	.41046	9.61553	.41260	16
45	.60645	.40406	.60874	.40620	.61103	.40835	.61330	.41049	.61557	.41264	15
46 47	.60648 .60652	.40410 .40413	.60878 .60882	.40624 .40627	.61107 .61110	.40838 .40842	.61334 .61338	.41053 .41056	.61561 .61565	.41267 .41271	14 13
+ 12'	9.60656	.40417	9.60886	.40631	9.61114	.40845	9.61342	.41060	9.61568	.41275	12
49	.60660	40420	.60890	.40635	.61118	.40849	.61346	.41063	.61572	41278	11
50	.60664	.40424	.60893	.40638	.61122	.40852	.61349	.41067	.61576	.41282	10
51	.60668	.40427	.60897	.40642	.61126	.40856	.61353	.41071	.61580	.41285	9
+ 13′	9.60671	.40431	9.60901	.40645	9.61129	.40860	9.61357	.41074	9.61583	.41289	8
53 51	.60675 $.60679$.40434 .40438	.60905	40649	.61133	.40863	.61361	.41078	.61587	.41293	7
54 55	.60683	.40442	.60909 .60912	.40652 .40656	.61137 .61141	.40867 .40870	.61364 .61368	.41082 .41085	.61591 .615 9 5	.41296 .41300	6 5
+ 14'	9.60687	.40445	9.60916	.40660	9.61145	.40874	9.61372	.41089	9.61598	.41303	4
57	.60691	.40449	.60920	.40663	.61148	.40878	.61376	.41092	.61602	.41307	4
58	.60694	.40452	.60924	.40667	.61152	.40881	.61380	.41096	.61606	.41310	2
59	.60698	.40456	.60928	.40670	.61156	.40885	.61383	.41099	.61610	.41314	1
+ 15'	9.60702	.40460	9.60931	.40674	9.61160	.40888	9.61387	.41103	9.61614	.41318	0
	18h .	4.4m	18h	4.3m	18h .	42m	18h.	41m	18h .	40m	
			20.		-0 /	.~	10.7		-0		

	5h 20m	80° 0′	5h 21m	80° 15′	5h 99m	80° 30′	5h 98m	80° 45′	5h 24m	81° 0′	
s s	Log. Hav.			Nat. Hav.		Nat. Hav.		Nat. Hav.			8
0	9.61614	.41318	9.61839	.41533	9,62063	.41748	9,62287	.41963	9.62509	.42178	60
1	.61617	.41321	.61843	.41536	.62067	.41751	.62290	.41966	.62513	.42182	59
2	.61621	.41325	.61846	.41540	.62071	.41755	.62294	.41970	.62516	.42185	58
3	.61625	.41328	.61850	.41543	.62074	.41758	.62298	.41974	.62520	.42189	57
+ 1'	9.61629	.41332	9.61854	.41547	9.62078	.41762	9.62301	.41977	9.62524	.42193	56
5	.61632	.41335	.61858	.41550	.62082	.41766	.62305	.41981	.62527	.42196	55
6	.61636	.41339	.61861	.41554	.62086	.41769	.62309	.41984	.62531	.42200	54
7	.61640	.41343	.61865	.41558	.62089	.41773	.62313	.41988	.62535	.42203	53
+ 2'	9.61644	.41346	9.61869	.41561	9.62093	.41776	9.62316	.41992	9.62538	.42207	52
9 10	.61647 .61651	.41350 .41353	.61873	.41565 .41568	.62097	.41780 .41783	.62320 $.62324$.41995 .41999	.62542 $.62546$.42211 .42214	51 50
11	.61655	.41357	.61876 .61880	.41572	.62100 .62104	.41787	.62324 .62327	.42002	.62540	.42218	<i>49</i>
$\frac{11}{+3'}$	9.61659	.41361	9.61884	.41576	9.62108	.41791	9.62331	.42006	9.62553	.42221	48
13	.61662	.41364	.61888	.41579	.62112	.41794	.62335	.42010	.62557	.42225	40 47
14	.61666	.41368	.61891	.41583	.62115	41798	.62338	.42013	.62561	42229	46
15	.61670	.41371	.61895	.41586	.62119	.41801	.62342	42017	.62564	.42232	45
+ 4'	9.61674	.41375	9.61899	.41590	9.62123	.41805	9.62346	.42020	9.62568	.42236	44
17	.61677	.41378	.61903	.41593	.62127	.41809	.62350	.42024	.62572	.42239	43
18	.61681	.41382	.61906	.41597	.62130	.41812	.62353	.42027	.62575	.42243	42
19	.61685	.41386	.61910	.41601	.62134	.41816	.62357	.42031	.62579	.42247	41
+ 5'	9.61689	.41389	9.61914	.41604	9.62138	.41819	9.62361	.42035	9.62583	.42250	40
21	.61692	.41393	.61917	.41608	.62141	.41823	.62364	.42038	.62586	.42254	39
22	.61696	.41396	.61921	.41611	.62145	.41827	.62368	.42042	.62590	.42257	38
23	.61700	.41400	.61925	.41615	.62149	.41830	.62372	.42045	.62594	.42261	37
+ 6′	9.61704	.41404	9.61929	.41619	9.62153	.41834	9.62376	.42049	9.62598	.42264	36
25	.61708	.41407	.61932	.41622	.62156	.41837	.62379	.42053	.62601	.42268	35
26	.61711	.41411	.61936	.41626	.62160	.41841	.62383	.42056	.62605	.42272	34
27	.61715	.41414	.61940	.41629	.62164	.41844	.62387	.42060	.62609	.42275	33
+ 7'	9.61719	.41418	9.61944	.41633	9.62168	.41848	9.62390	.42063	9.62612	.42279	32
29 30	.61723 .61726	.41421 .41425	.61947	.41636	.62171	.41852	.62394	.42067	.62616 .62620	.42282 .42286	31 30
31	.61720	.41429	.61951 .61955	.41640 .41644	.62175 $.62179$.41855 .41859	.62398 .62402	.42071 .42074	.62623	.42290	29
+ 8'	9.61734	.41432	9.61959	.41647	$\frac{0.02173}{9.62182}$.41862	$\frac{.02402}{9.62405}$.42078	9.62627	.42293	28
33	.61738	.41436	.61962	.41651	0.62182 0.62186	.41866	.62409	.42075	.62631	.42297	27
34	.61741	.41439	.61966	.41654	.62190	.41870	.62413	.42085	.62634	.42300	26
35	.61745	.41443	.61970	.41658	.62194	.41873	.62416	.42089	.62638	.42304	25
+ 9'	9.61749	.41447	9.61974	.41662	9.62197	.41877	9.62420	.42092	9.62642	.42308	24
37	.61753	.41450	.61977	.41665	.62201	.41880	.62424	.42096	.62646	.42311	23
3 8	.61756	.41454	.61981	.41669	.62205	.41884	.62427	.42099	.62649	.42315	22
39	.61760	.41457	.61985	.41672	.62208	.41888	.62431	.42103	.62653	.42318	21
+ 10′	9.61764	.41461	9.61989	.41676	9.62212	.41891	9.62435	.42106	9.62657	.42322	20
41	.61768	.41464	.61992	.41679	.62216	.41895	.62439	.42110	.62660	.42326	19
42	.61771	.41468	.61996	.41683	.62220	.41898	.62442	.42114	.62664	.42329	18
43	.61775	.41472	.62000	.41687	.62223	.41902	.62446	.42117	.62668	.42333	17
+ 11'	9.61779	.41475	9.62003	.41690	9.62227	.41905	9.62450	.42121	9.62671	.42336	16
45 46	.61783 .61786	.41479	.62007	.41694	.62231	.41909	.62453	.42124	.62675	.42340	15
40	.61790	.41482 .4148	.62011 .62015	.41697 . 11701	.62234 .62238	.41913	.62457 $.62461$.42128 .42132	.62679 $.62682$.42344 .42347	14 13
+ 12'	9.61794	.41490	9.62018	.41705	$\frac{.62238}{9.62242}$.41916 .41920	$\frac{.62461}{9.62464}$.42135	9.62686	.42351	$\frac{13}{12}$
49	.61798	.41493	00000	44800	20010	.41920	.62468	40400	.62690	400 74	
50	.61801	.41497	.62022	.41708 .41712	.62246	.41923	.62472	.42139 .42142	.62693	.42354 .42358	11 10
51	.61805	.41500	.62030	.41715	.62253	.41931	.62476	.42146	.62697	.42361	9
+ 13′,	9.61809	.41504	9.62033	.41719	9.62257	.41934	9.62479	.42150	9.62701	.42365	8
53	.61813	.41507	.62037	.41722	.62261	.41938	.62483	.42153	.62704	.42369	7
54	.61816	.41511	.62041	.41726	.62264	.41941	.62487	.42157	.62708	.42372	6
55	.61820	.41515	2045	.41730	.62268	.41945	.62490	.42160	.62712	.42376	5
+ 14'	9.61824	.41 18	9.62048	.41733	9.62272	.41949	9.62494	.42164	9.62716	.42379	4
57	.61828	.41522	.62052	.41737	.62275	.41952	.62498	.42168	.62719	.42383	3
58 50	.61831	.41525	.62056	.41740	.62279	.41956	.62501	.42171	.62723	.42387	2
59	.61835	.41529	.62059	.41744	.62283	.41959	.62505	.42175	.62727	.42399	_1
+ 15'	9.61839	.41533	9.62063	.41748	9.62287	.41963	9.62509	.42178	9.62730	.42394	0
	103	39m	18h	0 Om.	18h	974m	18h	0.Cm	401	0.5m	
	10"	0.0 to 10.00	18"	00'''	1811	0/110	1811	20114	18h	00110	
9150	149 14										

	5h 25m	81° 15′	5h 26m	81° 30′	5h 27m	81° 45′	5h 28m	82° 0′	5h 29m	82° 15′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav	Nat. Hav.	s
0	9.62730	.42394	9.62951	.42610	9.63170	.42825	9.63389	.43041	9.63606	.43257	60
2	.62734 $.62738$.42397 .42401	.62954 $.62958$.42613 .42617	.63174 $.63177$.42829 .42833	.63392 .63396	.43045 .43049	.63610 .63613	.43261 .43265	59 58
3	.62741	.42405	.62962	.42620	.63181	.42836	.63399	.43052	.63617	.43268	57
+ 1'	9.62745	.42408	9.62965	.42624	9.63185	.42840	9.63403	.43056	9.63621	.43272	56
5 6	$\begin{array}{c} .62749 \\ .62752 \end{array}$.42412 .42415	.62969 $.62973$.42628 .42631	.63188 $.63192$.42843	.63407 .63410	.43059 .43063	.63624 $.63628$.43275	54 54
7 7	.62756	.42419	.62976	.42635	.63196	.42851	.63414	.43067	.63631	.43283	58
+ 2/9 2	$9.62760 \\ .62763$.42423 .42426	9.62980 .62984	.42638 .42642	9.63199 .63203	.42854 .42858	9.63418 $.63421$.43070 .43074	9.63635	.43286 .43290	52 51
10	.62767	.42430	.62987	.42645	.63207	.42861	.63425	.43077	.63642	.43293	50
11	.62771	.42433	.62991	.42649	.63210	.42865	.63429	.43081	.63646	. 43297	49
+ 3'	9.62774 .62778	.42437 .42441	9.62995	.42653 .42656	9.63214	.42869 .42872	9.63432	.43085 .43088	9.63649	.43301	48
13	.62782	.42444	.63002	.42660	.63221	.42876	.63439	.43092	.63657	.43308	40
15	.62785	.42448	.63006	.42663	.63225	42879	.63443	.43095	.63660	.43312	40
17	9.62789 .62793	.42451 .42455	9.63009	.42667 .42671	9.63228 .63232	.42883 .42887	9.63447 .63450	.43099 .43103	$9.63664 \\ .63668$.43315 .43319	44
18	.62796	.42459	.63017	.42674	.63236	.42890	.63454	.43106	.63671	.43322	44 42 42
$\frac{19}{+5'}$	$\frac{.62800}{9.62804}$	$\frac{.42462}{.42466}$	$\frac{.63020}{9.63024}$.42678 .42681	$\frac{.63239}{9.63243}$.42894	$\frac{.63458}{9.63461}$.43110	$\frac{.63675}{9.63678}$.43326	4.
21	.62808	.42469	.63024	.42685	.63243	.42901	.63465	.43117	.63682	.43333	40 39
22	.62811	.42473	.63031	.42689	.63250	.42905	.63468	.43121	.63686	.43337	38
$\frac{23}{+6'}$	$\frac{.62815}{9.62819}$.42477	.63035 9.63039	.42692 .42696	$\frac{.63254}{9.63258}$.42908	$\frac{.63472}{9.63476}$.43124	$\frac{.63689}{9.63693}$.43340	30
25	.62822	.42484	.63042	.42699	.63261	.42915	.63479	.43131	.63696	.43348	33
26 27	.62826 .62830	.42487	.63046 .63050	.42703	.63265	.42919 .42923	.63483	.43135	.63700	.43351	3.
$\frac{z_{1}}{+7'}$	9.62833	.42491	9.63063	.42707	$\frac{.63269}{9.63272}$.42926	$\frac{.63487}{9.63490}$.43139	$\frac{.63704}{9.63707}$.43355	33
29	.62837	.42498	.63057	.42714	.63276	.42930	.63494	.43146	.63711	.43362	33
30 31	.62841 $.62844$.42502 .42505	.63061 .63064	.42717 .42721	.63279 .63283	.42933 .42937	.63497	.43149 .43153	.63714 .63718	.43366 .43369	25
+ 8'	9.62848	.42509	$\frac{0.03001}{9.63068}$.42725	9.63287	.42941	9.63505	.43157	9.63722	.43373	28
33	.62852	.42512	.63071	.42728	.63290	.42944	.63508	.43160	.63725	.43376	28
34 35	.62855 $.62859$.42516 .42520	.63075 .63079	.42732 .42735	.63294 .63298	.42948 .42951	.63512 .63516	.43164 .43167	.63729 .63733	.43380 .43384	20
+ 9'	9.62863	.42523	9.63082	.42739	9.63301	.42955	9.63519	.43171	9.63736	.43387	24
37	.62866	.42527	.63086	.42743	.63305	.42959	.63523	.43175	.63740	.43391	25
38 39	.62870 $.62874$.42530 .42534	.63090 .63093	.42746 .42750	.63309 .63312	.42962 .42966	.63526 .63530	.43178 .43182	.63743 .63747	.43394 .43398	2
+ 10'	9.62877	.42538	9.63097	.42753	9.63316	.42969	9.63534	.43185	9.63751	.43402	20
41 42	.62881 $.62885$.42541 .42545	.63101	.42757 .42761	.63320	.42973	.63537 .63541	.43189	.63754	.43405 .43409	18 18
43	.62888	.42548	.63104	.42764	.63327	.42980	.63545	.43196	.63761	.43412	17
+ 11'	9.62892	.42552	9.63112	.42768	9.63330	.42984	9.63548	.43200	9.63765	.43416	16
45 46	.62896 .62899	.42556 .42559	.63115 .63119	.42771 .42775	.63334	.42987	.63552 .63555	.43203	.63769 .63772	.43420 .43423	14
47	.62903	.42563	.63123	.42779	.63341	.42995	.63559	.43211	.63776	.43427	13
+ 12'	$9.62907 \\ .62910$.42566 .42570	9.63126 .63130	.42782	9.63345	.42998 .43002	9.63563	.43214	9.63779	.43430 .43434	12
49 50	.62914	.42574	.63134	.42786 .42789	.63349	.43002	.63566 .63570	.43218 .43221	.63783 .63787	.43434	10
51	.62918	.42577	.63137	.42793	63356	.43009	.63574	.43225	.63790	.43441	.5
+ 13 ′	$9.62921 \\ .62925$.42581 .42584	9.63141 .63145	.42797 .42800	9.63360 .63363	.43013 .43016	9.63577 .63581	.43229 .43232	9.63794 .63797	.43445 .43448	2
54	.62929	.42588	.63148	.42804	.63367	.43020	.63584	.43236	.63801	.43452	é
55	.62932	.42592	.63152	.42807	.63370	.43023	.63588	.43239	.63805	.43456	- 8
+ 14' 57	$9.62936 \\ .62940$.42595 .42599	9.63156	.42811 .42815	9.63374	.43027 .43031	9.63592	.43243 .43247	9.63808 .63812	.43459 .43463	4
58	.62943	.42602	.63163	.42818	.63381	.43034	.63599	.43250	.63815	.43466	2
$\frac{59}{+$ 15 '	$\frac{.62947}{9.62951}$.42606 .42610	$\frac{.63166}{9.63170}$.42822	$\frac{.63385}{9.63389}$.43038	$\frac{.63602}{9.63606}$.43254	$\frac{.63819}{9.63823}$.43474	- 0
T 19											"
	18h	34m	18h	33m	18h	32m	18h	31m	18h	30711	

s fb y 0m 82° 30′ fb y m 82° 45′ g y m 82° 43′ g y m 82° 43′ <th></th> <th>5h 20m</th> <th>890 20/</th> <th>5h 31m</th> <th>Q90 AE/</th> <th>5h 32m</th> <th>830 0/</th> <th>5h. 22m</th> <th>83° 15′</th> <th>5h. 21m</th> <th>Q90 90/</th> <th></th>		5h 20m	890 20/	5h 31m	Q90 AE/	5h 32m	830 0/	5h. 22m	83° 15′	5h. 21m	Q90 90/	
0 9.63823 .43474 9.64038 .43690 9.64253 .43907 9.64467 .44123 9.64679 .44344 60 1 6.63826 .43477 6.64012 .43894 6.6256 .43810 .64470 .44127 6.64683 .44343 5.8 2 6.63830 .43481 6.0406 .43597 6.92690 .33914 6.4474 .444134 6.6490 .44351 5.7 5 6.63841 .43492 9.64056 .43708 9.62673 .43921 9.44481 .44183 9.64694 .44351 5.7 5 6.63841 .43493 6.04060 .43712 6.6273 .43923 9.64684 .444141 6.64697 .44353 5.7 6 6.63841 .43493 6.04060 .43715 9.64261 .43923 9.64484 .44141 6.64697 .44358 5.5 6 6.63851 .43593 9.64060 .43715 9.64251 .43923 9.64492 .44148 .04704 .44365 5.3 9 6.63851 .43593 9.64060 .43715 9.64251 .43933 9.64969 .44418 .44163 .64701 .44365 5.3 9 6.63851 .43593 9.64060 .43715 9.64251 .43933 9.6499 .44163 .64711 .44372 5.7 11 6.63859 .43513 .64074 .43723 6.6285 .43893 9.6499 .44163 .64711 .44372 5.7 12 6.53859 .43513 .64074 .43723 9.64296 .43894 .44163 .44163 .64711 .44372 5.7 13 6.63859 .43513 .64074 .43723 9.64296 .43894 .43650 .44163 .64711 .44372 5.7 14 6.53873 .43532 .64088 .43714 .64303 .43861 .34861 .44163 .64718 .44380 .49 15 6.63873 .43532 .64088 .43714 .64303 .43861 .34861 .44161 .64729 .44380 .49 17 6.63880 .43531 .64069 .43748 .966310 .44563 .64521 .44188 .44164 .44181 .4418												g
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5 63841 43492 64666 43708 69271 43925 64488 44141 64607 44336 54 7 63844 43499 64668 43715 64274 43928 64488 44145 64704 44362 54 2 9,63851 43360 6,0671 43719 64281 43933 6,4492 44152 9,4703 43369 52 10 63859 43510 64074 43726 64289 43939 64490 44156 647711 44376 50 17 63860 43517 6,04074 43726 64289 43939 64500 44163 64711 44386 9 1 3 63860 43517 9,0485 4370 6,04500 44163 64718 44383 8 1 4 63860 43517 6,0488 44361 44179 6,04725 44383 8 1 6 63877 43328												
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17 63884 .43333 6.4099 .43751 .64314 .43968 .64527 .44185 .64740 .44401 .42 .49 .63891 .43542 .64106 .43759 .64317 .43975 .64531 .44188 .64747 .44408 .41 ************************************												
18 63887 .43339 64102 .43755 .64317 .43975 .64381 .44188 .64747 .44409 .41 + 5' 9.63895 .43546 9.64110 .43762 9.64324 .43979 9.64538 .44195 9.64750 .44411 .40 21 63898 .43549 .64113 .43766 .64328 .43989 .64541 .44199 .64754 .44410 .32 23 .63905 .43557 .64121 .43773 .64335 .43980 .64548 .44206 .64761 .44413 .38 25 .63913 .43564 .64128 .43780 .64342 .43997 .64555 .44213 .64764 .44423 .35 26 .63916 .43567 .64131 .43784 .64340 .44000 .64555 .44213 .64764 .44427 .6 29 .63920 .43577 .64138 .43795 .64340 .44000 .64557 .44217 .64778 </th <th></th>												
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21 63898 43549 .64113 .43766 .64328 .43982 .64545 .44199 .64754 .44410 39 23 .63905 .43557 .64121 .43773 .64335 .43990 .64548 .44206 .64761 .44423 37 25 .63913 .43564 .64128 .43780 .64342 .43997 .64555 .44210 .964764 .44423 .37 26 .63916 .43567 .64131 .43784 .64346 .44000 .64555 .44213 .64764 .44423 .32 27 .63920 .43571 .64135 .43787 .64349 .44008 .64563 .44217 .64771 .44433 .34 29 .63927 .43578 .64132 .43795 .64366 .44015 .64653 .44217 .64771 .44441 .37 29 .63934 .43585 .64146 .43798 .64366 .44011 .64573 .4421 .44713											1	
22 63905 43553 64117 43769 64331 43990 64548 44203 64757 44419 37 + 8' 9,63909 43560 964124 43777 9,64339 43993 9,64552 44210 9,64764 44421 37 25 63910 43560 64128 43780 64342 43997 64555 44213 646765 44421 3676 64131 43784 64346 44004 64559 44217 64775 44433 37 27 63920 43571 64135 43787 64349 44004 64559 44217 64775 44437 33 29 63927 43578 64142 43795 64363 44015 64570 44221 64775 44445 39 31 63931 43589 64143 43802 64363 44015 64570 44221 64775 44445 39 33 63941 43593 64153												
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25 63916 43564 64128 43780 64342 43997 64555 44213 64768 44430 35 26 63916 43567 64131 43784 64346 44000 64559 44217 64771 44431 34 27 63920 43571 64135 43787 64349 44004 64563 44221 64775 44431 33 29 63927 43578 64142 43795 64356 44011 64570 44224 9.6478 44411 32 30 63931 43585 64146 43798 64360 44015 64570 44224 64782 444413 32 4 8 9.63938 43585 64149 43802 64363 44018 64577 44235 64783 44443 30 33 63941 43593 64160 43816 64371 44029 64580 44232 64796 44453 25												
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$ \begin{array}{c} 29, \\ 6.3927 \\ 6.3931 \\ 4.3582 \\ 6.4146 \\ 4.3585 \\ 6.4146 \\ 4.3585 \\ 6.4149 \\ 4.3802 \\ 6.4363 \\ 4.4018 \\ 6.4577 \\ 4.4235 \\ 6.4439 \\ 6.4577 \\ 4.4235 \\ 6.4789 \\ 4.4448 \\ 30 \\ 31 \\ 6.3934 \\ 4.3585 \\ 6.4149 \\ 4.3585 \\ 6.4149 \\ 4.3802 \\ 6.4363 \\ 4.4018 \\ 6.4577 \\ 4.4235 \\ 6.4439 \\ 6.4577 \\ 4.4235 \\ 6.4789 \\ 4.4448 \\ 30 \\ 6.4789 \\ 4.4448 \\ 30 \\ 6.4789 \\ 4.4448 \\ 30 \\ 30 \\ 31 \\ 8.3934 \\ 4.3585 \\ 6.4149 \\ 4.3585 \\ 6.4149 \\ 4.3805 \\ 6.4160 \\ 4.3813 \\ 6.4371 \\ 4.4022 \\ 6.4587 \\ 4.4022 \\ 6.4587 \\ 4.4242 \\ 6.4390 \\ 6.4587 \\ 4.4242 \\ 6.4390 \\ 4.4453 \\ 6.4490 \\ 6.4589 \\ 4.4245 \\ 6.4800 \\ 4.44463 \\ 2.6 \\ 4.4253 \\ 6.4800 \\ 4.4463 \\ 2.6 \\ 4.426 \\ 6.4800 \\ 4.4463 \\ 2.6 \\ 4.4253 \\ 6.4800 \\ 4.4463 \\ 2.6 \\ 4.4253 \\ 6.4800 \\ 4.4463 \\ 2.6 \\ 4.4253 \\ 6.4807 \\ 4.4451 \\ 2.6 \\ 4.2 \\ 6.3959 \\ 4.3611 \\ 6.4178 \\ 4.3831 \\ 6.4399 \\ 4.4055 \\ 6.4402 \\ 4.4263 \\ 6.4401 \\ 4.4285 \\ 6.4421 \\ 4.4285 \\ 6.4421 \\ 4.4386 \\ 6.4442 \\ 4.4080 \\ 6.4651 \\ 4.4275 \\ 6.4680 \\ 4.4451 \\ 6.4680 \\ 4.4451 \\ 6.4680 \\ 4.4451 \\ 6.4680 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4451 \\ 6.4660 \\ 4.4428 \\ 6.4683 \\ 4.4448 \\ 6.4600 \\ 4.4428 \\ 6.4600 \\ 4.4428 \\ 6.4600 \\ 4.4428 \\ 6.4600 \\ 4.$												
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35 .63941 .43593 .64156 .43809 .64371 .44026 .64584 .44242 .64796 .44459 27 34 .63945 .43506 .64160 .43813 .64374 .44029 .64587 .4426 .64800 .44463 .26 5 .63949 .43600 .64164 .43816 .64378 .44036 .9.64594 .44253 .9.64803 .44460 .25 37 .63956 .43607 .64171 .43824 .64388 .44040 .64598 .44257 .64810 .44471 .23 38 .63959 .43611 .64174 .43827 .64388 .44044 .64605 .44264 .64817 .44447 .23 9 .63966 .43618 .9.64181 .43834 .64396 .44051 .9.64609 .44268 .64821 .44481 .21 41 .63970 .43622 .64185 .43834 .64396 .44051 .9.64602 .44278 .6482												
34 .63945 .43596 .64160 .43813 .64374 .44029 .64587 .44246 .64800 .41463 26 35 .63949 .43600 .64164 .43816 .64378 .44036 .64591 .44250 .664803 .44166 25 49 .63952 .43603 .964167 .43820 .64385 .44040 .64598 .44257 .64810 .44474 .23 38 .63959 .43611 .64174 .43821 .64385 .44041 .64602 .44260 .64814 .44477 .22 39 .63963 .43618 .64178 .43831 .64392 .44047 .64605 .44260 .64814 .44477 .22 41 .63970 .43628 .64399 .44051 .964605 .44281 .21 .44281 .21 .64824 .44488 .29 42 .63974 .43629 .64192 .43845 .64403 .44058 .64616 .44275												28
+ 9' 9.63952 .43603 9.64167 .43820 9.64381 .44036 9.64594 .44253 9.64807 .44470 24 37 6.3956 .43607 6.4171 .43824 6.4385 .44040 .64598 .44257 .64810 .44474 23 38 6.3959 .43611 .64178 .43827 .64388 .44044 .64602 .44260 .64814 .44477 22 39 .63963 .43614 .64178 .43831 .64392 .44047 .64609 .44268 .64814 .44481 21 41 .63970 .43625 .64189 .43834 .64399 .44055 .64612 .44271 .64824 .44488 19 42 .63974 .43625 .64189 .43845 .64403 .44062 .64612 .44271 .64824 .44488 19 45 .63984 .43636 .64199 .43852 .64413 .44069 .64626 .44286 .64838 <th>34</th> <th>.63945</th> <th>.43596</th> <th>.64160</th> <th>.43813</th> <th>.64374</th> <th>.44029</th> <th>.64587</th> <th>.44246</th> <th>.64800</th> <th>.44463</th> <th>26</th>	34	.63945	.43596	.64160	.43813	.64374	.44029	.64587	.44246	.64800	.44463	26
37 .63956 .43607 .64171 .43824 .64385 .44040 .64598 .44257 .64810 .44474 23 38 .63959 .43611 .64178 .43827 .64388 .44044 .64602 .44260 .64814 .44477 .22 49 .63963 .43614 .64178 .43831 .64392 .44047 .64605 .44264 .64817 .44481 21 + 10' .963966 .43618 .964181 .43834 .964396 .44051 .9.64609 .44268 .964821 .44488 21 42 .63974 .43625 .64189 .43845 .64406 .44062 .64616 .44275 .64828 .44492 18 43 .63977 .43632 .64192 .43845 .64406 .44062 .64619 .44278 .64828 .44492 18 45 .63984 .43636 .64192 .43852 .64410 .44065 .9.64623 .4228 .64831												
38 .63959 .43611 .64174 .43827 .64388 .44044 .64002 .44260 .64814 .44477 .22 39 .63963 .43618 .64178 .43831 .64392 .44047 .64605 .44264 .64817 .44481 .21 + 10' 9.63966 .43618 9.64181 .43834 9.64396 .44051 9.64609 .44268 9.64821 .44484 20 41 .63970 .43625 .64189 .43842 .64403 .44058 .64616 .44275 .64824 .44488 19 43 .63977 .43629 .64192 .43845 .64406 .44062 .64619 .44278 .64831 .44492 18 45 .63981 .43636 .64196 .43849 .64410 .44065 .64623 .44286 .64838 .44409 .64638 .44286 .64838 .44506 .44286 .64838 .44506 .44286 .64838 .44506 .44288	37											
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3 8	.63959	.43611	.64174	.43827	.64388	.44044	.64602	.44260	.64814	.44477	22
41 .63970 .43622 .64185 .43838 .64399 .44055 .64612 .44271 .64824 .44488 19 42 .63974 .43625 .64189 .43842 .64403 .44068 .64616 .44275 .64828 .44492 18 43 .63977 .43629 .64192 .43849 .64406 .44062 .64619 .44278 .64831 .44495 17 + 11' 9.63981 .43632 .964196 .43849 .964410 .44069 .64626 .44286 .64831 .44495 16 46 .63988 .43640 .64203 .43856 .64417 .44073 .64630 .44286 .64842 .44506 14 47 .63992 .43643 .64206 .43863 .964424 .44080 .64633 .44293 .64845 .44510 13 4 9 .63999 .43654 .64217 .43863 .964244 .44080 .64637 .44296 .964849<							1					
42 .63974 .43625 .64189 .43842 .64403 .44058 .64616 .44275 .64828 .44492 18 43 .63977 .43629 .64192 .43845 .64406 .44062 .64619 .44278 .64828 .44495 17 + 11' 9.63981 .43632 9.64199 .43852 .64410 .44065 9.64626 .44282 9.64835 .44499 16 45 .63988 .43640 .64203 .43856 .64417 .44073 .64630 .44289 .64848 .44500 .54643 .44289 .64845 .44510 13 + 12' 9.63995 .43647 9.64210 .43863 9.64424 .44080 9.64637 .44296 9.64849 .44513 12 49 .63999 .43654 .64217 .43870 .64428 .44087 .64637 .44296 .964849 .44517 11 50 .64002 .43654 .64217 .43870 .												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	42	.63974	.43625	.64189	.43842	.64403	.44058	.64616	.44275	.64828	.44492	18
45 .63984 .43636 .64199 .43852 .64413 .44069 .64626 .44286 .64838 .44502 15 46 .63988 .43640 .64203 .43866 .64417 .44073 .64630 .44289 .64842 .44506 14 47 .63992 .43647 .64206 .43863 .964240 .44076 .64633 .44293 .64845 .44510 13 + 12' 9.63995 .43650 .64214 .43867 .64428 .44083 .64640 .44300 .64852 .44511 12 50 .64002 .43654 .64217 .43870 .64431 .44087 .64644 .44304 .64856 .44521 10 51 .64006 .43658 .64221 .43874 .64435 .44091 .64648 .44307 .64860 .44524 9 + 13' 9.64010 .43665 .64224 .43878 9.64438 .44094 9.64651 .44311 9.64863												1
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	46	.63988	.43640	.64203	.43856	.64417	.44073	.64630	.44289	.64842	.44506	14
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		00000		0.107.4	10000	01100				0.0000	1	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	50	.64002	.43654	.64217	.43870	.64431	.44087	.64644	.44304	.64856	.44521	10
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$												
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$.64228								
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	54	.64017	.43668	.64231	.43885	.64445	.44101	.64658	.44318	.64870	.44535	6
57 .64028 .43679 .64242 .43896 .64456 .44112 .64669 .44329 .64881 .44546 3 58 .64031 .43683 .64246 .43899 .64460 .44116 .64672 .44333 .64884 .44549 2 59 .64035 .43686 .64249 .43903 .64463 .44120 .64676 .44336 .64888 .44553 1 + 15' 9.64038 .43690 9.64253 .43907 9.64467 .44123 9.64679 .44340 9.64891 .44557 0												
58 .64031 .43683 .64246 .43899 .64460 .44116 .64672 .44333 .64884 .44549 2 59 .64035 .43686 .64249 .43903 .64463 .44120 .64676 .44336 .64888 .44553 1 + 15' 9.64038 .43690 9.64253 .43907 9.64467 .44123 9.64679 .44340 9.64891 .44557 0												3
+ 15 ′ 9.64038 .43690 9.64253 .43907 9.64467 .44123 9.64679 .44340 9.64891 .44557 0	<i>58</i>	.64031	.43683	.64246	.43899	.64460	.44116	.64672	.44333	.64884	.44549	2
												-
18h 29m 18h 28m 18h 27m 18h 26m 18h 25m	T 10						1	l	!			0
	L	18h	29m	18h	28m	18h	27m	18h	26m	18h	25m	

	5h 35m	83° 45′	5h 36m	84° 0′	5h 37m	84° 15′	5h 38m	84° 30′	5h 39m	84° 45′	
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
0	9.64891	.44557	9.65102	.44774	9.65312	.44991	9.65521	.45208	9.65729	.45425 .45429	60
1 2	.64895 .64898	.44569 .44564	.65106	.44781	.65316	.44994 .44998	.65525 $.65528$.45211 .45215	.65733 $.65736$.45432	59 58
3	.64902	.44568	.65113	.44784	.65323	.45001	.65532	.45219	.65740	.45436	57
$+\frac{1}{5}$	9.64905 .649 0 9	.44571 .44575	9.65116 $.65120$.44788 .44792	$9.65326 \\ .65330$.45005 .45009	9.65535 .65539	.45222 .45226	$9.65743 \\ .65747$.45439 .45443	56 55
6	.64912	.44578	.65123	.44795	,65333	.45012	.65542	.45229	.65750	.45447	54
$\frac{\gamma}{+2'}$	$\frac{.64916}{9.64919}$.44582 .44586	$\frac{.65127}{9.65130}$	$\frac{.44799}{.44803}$	$\frac{6.65337}{9.65340}$	$\frac{.45016}{.45020}$	$\frac{.65546}{9.65549}$.45233	$\frac{.65754}{9.65757}$.45450	53 52
7 9	.64923	.44589	.65134	.44806	.65344	.45023	.65553	.45240	.65761	.45458	51
10	.64926	.44593	.65137 .65141	.44810	.65347	.45027	.65556	.45244	.65764	.45461 .45465	50
$\frac{11}{+3'}$	$\frac{.64930}{9.64934}$.44596 .44600	9.65144	.44813	$\frac{.65351}{9.65354}$.45030 .45034	$\frac{.65559}{9.65563}$.45248 .45251	$\frac{.65767}{9.65771}$.45468	49 48
13	.64937	.44604	.65148	.44821	.65358	.45038	.65566	.45235	.65774	.45472	47
$\frac{14}{15}$.64941 $.64944$.44697 .44611	.65151 .65155	.44824 .44828	.65361 $.65365$.45041	.65570	.45258	.65778	.45476	46 45
$+ \frac{10}{4'}$	9.64948	.44614	9.65158	.44831	9.65368	.45048	9.65577	.45266	9.65785	.45483	44
17	.64951	.44618	.65162	.44835	.65372	.45952	.65580	.45269	.65788	.45486	43
18 19	.64955 .64958	.44622 .44625	.65165	.44839 .44842	.65375 .65378	.45056 .45059	.65584 $.65587$.45273 .45276	.65792 .65795	.45490 .45494	42 41
+ 5'	9.64962	.44629	9.65172	.44846	9.65382	.45063	9.65591	.45280	9.65799	.45497	40
21 23	.64965 $.64969$.44633 .44636	.65176 .65179	.44850 .44853	.65385 .65389	.45067 .45070	.65594	.45284	.65802	.45501 .45505	39 38
23	.64972	.44640	.65183	.44857	.65392	.45074	.65601	.45291	.65809	.45508	37
$+{}^{6'}_{25}$	9.64976	.44643 .44647	9.65186	.44860	9.65396	.45077	9.65605	.45295	9.65812	.45512	36
25 26	.64979 $.64983$.44651	.65190 .65193	.44864 .44868	.65399 .65403	.45081 .45085	.65608. .65612	.45298 .45302	.65816	.45515 .45519	35 34
27	.64986	.44654	.65197	.44871	.65406	.45088	.65615	.45305	.65823	.45523	33
+ 7'	$9.64990 \\ .64993$.44658 .44661	$9.65200 \\ .65204$.44875 .44878	$9.65410 \\ .65413$.45092 .45096	9.65619 $.65622$.45309 .45313	$9.65826 \\ .65830$.45526 .45530	32 31
30	.64997	.44665	.65207	.44882	.65417	.45099	.65625	.45316	.65833	.45534	30
31	.65000	.44669	.65211	.44886	.65421	.45103	.65629	.45320	.65837	.45537	29
$+_{33}^{8'}$	9.65004 .65007	.44672 .44676	$9.65214 \\ .65218$.44889 .44893	$9.65424 \\ .65427$.45106 .45110	9.65632 .65636	.45324 .45327	9.65840 $.65844$.45541	28 27
34	.65011	.44680	.65221	.44897	.65431	.45114	.65639	.45331	.65847	.45548	26
$\frac{35}{+9'}$	$\frac{.65014}{9.65018}$.44683 .44687	$\frac{.65225}{9.65228}$.44900	$\frac{.65434}{9.65438}$.45117	$\frac{.65643}{9.65646}$.45334 .45338	$\frac{.65850}{9.65854}$.45552	25
37	.65021	.44690	.65232	.44907	.65441	.45124	.65650	.45342	.65857	.45559	23
38 39	.65025 .65028	.44694 .44698	.65235	.44911 .44915	.65445 $.65448$.45128 .45132	.65653 .65657	.45345 .45349	.65861 $.65864$.45563 .45566	22 21
+ 10'	9.65032	.44701	9.65242	.44918	9.65452	.45135	9.65660	.45353	$\frac{0.0004}{9.65868}$.45570	20
41	.65035	.44705	.65246	.44922	.65455	.45139	.65664	.45356	.65871	.45573	19
42 43	.65039 .65043	.44708 .44712	.65249 $.65253$.44925	.65459 .65462	.45143	.65667 .65671	.45360 .45363	.65875 .65878	.45577 .45581	18 17
+ 11'	9.65046	.44716	9.65256	.44933	9.65466	.45150	9.65674	.45367	9.65881	.45584	16
45 46	.65050 .65053	.44719 .44723	.65260 .65263	.44936 .44940	.65469 .65473	.45153	.65677 .65681	.45371	.65885	.45588 .45592	15 14
47	.65057	.44727	.65267	.44944	.65476	.45161	.65684	.45378	.65892	.45595	13
+ 12'	9.65060	.44730	9.65270	.44947	9.65480	.45164	9.65688	.45381	9.65895	.45599	12
49 50	.65064 .65067	.44734	.65274 .65277	.44951 .44954	.65483 .65486	.45168 .45172	.65691 .65695	.45385 .45389	.65899 $.65902$.45602 .45606	11 10
51	.65071	.44741	.65281	.44958	.65490	.45175	.65698	.45392	.65906	.45610	9
+ 13' 53	$9.65074 \\ .65078$.44745 .44748	9.65284 .65288	.44962 .44965	$9.65493 \\ .65497$.45179 .45182	9.65702	.45396 .45400	9.65909 $.65913$.45613 .45617	8 7
54	.65081	.44752	.65291	.44969	.65500	.45186	.65709	.45403	.65916	.45620	6
$\frac{55}{+14'}$.65085	.44755	$\frac{.65295}{9.65298}$.44973	.65504	.45199	.65712	.45407	.65919	.45624	5
57	$9.65088 \\ .65092$.44759 .44763	.65302	.44976 .44980	9.65507 $.65511$.45193 .45197	9.65716 .65719	.45410 .45414	9.65923 .65926	.45628 .45631	3
58	.65095	.44766	.65305	.44983	.65514	.45200	.65722	.45418	.65930	.45635	2
$\frac{59}{+15'}$	$\frac{.65099}{9.65102}$.44774	$\frac{.65309}{9.65312}$.44987	$\frac{.65518}{9.65521}$.45204	$\frac{.65726}{9.65729}$.45421	$\frac{.65933}{9.65937}$.45639 .45642	0
		24m		23m		22m		21m	18h		Ĭ
		~ 7	10.	~ -	1 10"	~~	1 10.	~ 4	10	~ ~	_

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	5h 40m	85° 0′	5h 41m	85° 15′	5h 42m	85° 30′	5h 43m	85° 45′		86° 0′.	
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	9.65937	.45642	9.66143	.45860	9.66348	.46077	9.66553	.46295	9.66757	.46512	60
1	.65940	.45646	.66146	.45863	.66352 $.66355$.46081 .46084	.66556 .66560	.46298 .46302	.66760 .66763	.46516 .46519	59 58
2 3	.65944 $.65947$.45649 .45653	.66150 .66153	.45867 .45870	.66359	.46088	.66563	.46305	.66767	.46523	57
+ 1'	9.65950	.45657	9.66157	.45874	9.66362	.46092	9.66567	.46309	9.66770	.46527	56
5	.65954	.45660	.66160	.45878	.66366	.46095	.66570	.46313	.66774	.46530	55
6	.65957	.45664	.66164	.45881	.66369	.46099	.66573	.46316	.66777	.46534	54
7	.65961	.45668	.66167	.45885	.66372	.46102	.66577	.46320	.66780	.46538	53
$+ \frac{2}{9}$	$9.65964 \\ .65968$.45671 .45675	$9.66170 \\ .66174$.45889 .45892	$9.66376 \\ .66379$.46106 .46110	$9.66580 \\ .66584$.46324 .46327	$9.66784 \\ .66787$.46541 .46545	52 51
10	.65971	.45678	.66177	.45896	.66383	.46113	.66587	.46331	.66791	.46548	50
11	.65975	.45682	.66181	.45899	.66386	.46117	.66590	.46334	.66794	.46552	49
+ 3'	9.65978	.45686	9.66184	.45903	9.66389	.46121	9.66594	.46338	9.66797	.46556	48
13	.65981	.45689	.66188	.45907	.66393	.46124	.66597	.46342	.66801	.46559	47
14 15	.65985 $.65988$.45693 .45697	.66191 $.66194$.45910 .45914	.66396	.46128 .46131	.66601	.46345 .46349	.66804	.46563 .46567	46 45
+ 4'	$\frac{0.05988}{9.65992}$.45700	9.66198	.45918	$\frac{.00400}{9.66403}$.46135	9.66607	.46353	9.66811	.46570	44
17	.65995	45704	.66201	45921	.66407	.46139	.66611	.46356	.66814	.46574	43
18	.65999	.45707	.66205	.45925	.66410	.46142	.66614	.46360	.66818	.46577	42
19	.66002	.45711	.66208	.45928	.66413	.46146	.66618	.46363	.66821	.46581	41
+ 5'	9.66006 .66009	.45715 .45718	$9.66212 \\ .66215$.45932 .45936	9.66417 $.66420$.46150 .46153	$9.66621 \\ .66624$.46367 .46371	$9.66824 \\ .66828$.46585 .46588	40 39
22	.66012	45722	.66218	.45939	.66424	.46157	.66628	.46374	.66831	.46592	38
23	.66016	.45726	.66222	.45943	.66427	.46161	.66631	.46378	.66835	.46596	37
+ 6'	9.66019	.45729	9.66225	.45947	9.66430	.46164	9.66635	.46382	9.66838	.46599	36
25	.66023	.45733	.66229	.45950	.66434	.46168	.66638	.46385	.66841	.46603	35
26 27	.66026	.45736 .45740	.66232 .66236	.45954 .45957	.66437 .66441	.46171 .46175	.66641 $.66645$.46389 .46392	.66845	.46606 .46610	34 33
+ 7	9.66033	.45744	9.66239	.45961	9.66444	.46179	9.66648	.46396	9.66851	.46614	32
29	.66037	.45747	.66242	.45965	.66447	.46182	.66652	.46400	.66855	.46617	31
30	.66040	.45751	.66246	.45968	.66451	.46186	.66655	.46403	.66858	.46621	30
31	.66043	.45755	.66249	.45972	.66454	.46189	.66658	.46407	.66862	.46625	29
+ 8'	$9.66047 \\ .66050$.45758 .45762	$9.66253 \\ .66256$.45976 .45979	$9.66458 \\ .66461$.46193 .46197	9.66662 $.66665$.46411 .46414	9.66865	.46628 .46632	28 27
34	.66054	45765	.66260	45983	.66464	.46200	.66669	.46418	.66872	.46636	26
35	.66057	.45769	.66263	.45986	.66468	.46204	.66672	.46421	.66875	.46639	25
+ 9'	9.66061	.45773	9.66266	.45990	9.66471	.46208	9.66675	.46425	9.66878	.46643	24
37 38	.66064 $.66067$.45776	.66270	45994	.66475	.46211	.66679	.46429	.66882	46646	23
39	.66071	.45780 .45783	.66273 .66277	.45997 .46001	.66482	.46215 .46218	.66682	.46432 .46436	.66885	.46650 .46651	21
+ 10'	9.66074	.45787	9.66280	.46005	9.66485	.46222	9.66689	.46440	9.66892	.46657	20
41	.66078	.45791	.66284	.46008	.66488	.46226	.66692	.46443	.66895	.46661	19
42	.66081	.45794	.66287	.46012	.66492	.46229	.66696	.46447	.66899	.46665	18
43	.66085	45798	$\frac{.66290}{9.66294}$.46015	.66495	.46233	.66699	.46451	.66902	.46668	17
+ 11' 45	$9.66088 \\ .66092$.45802 .45805	.66297	.46019 .46023	9.66499 $.66502$.46237 .46240	9.66702 .66706	.46454 .46458	9.66905	.46672 .46675	16 15
46	.66095	.45809	.66301	.46026	.66505	.46244	.66709	.46461	.66912	.46679	14
47	.66098	.45812	.66304	.46030	.66509	.46247	.66713	.46465	.66916	.46633	13
+ 12'	9.66102	.45816	9.66307	.46034	9.66512	.46251	9.66716	.46469	9.66919	.46686	12
49 50	.66105 $.66109$.45820 .45823	.66311 $.66314$.46037 .46041	.66516	.46255 .46258	.66719	46472	.66922 .66926	.46690 .46694	11
50 51	.66112	.45827	.66318	.46044	.66519 $.66522$.46262	.66726	.46476 .46480	.66929	.46697	10
+ 13′	9.66116	.45831	9.66321	.46048	9.66526	.46266	9.66730	.46483	9.66932	.46701	8
53	.66119	.45834	.66325	.46052	.66529	.46269	.66733	.46487	.66936	.46704	7
54 55	.66122 $.66126$	45838	.66328	46055	.66533	46273	.66736	.46490	.66939	46708	6
$\frac{55}{+14'}$	9.66129	.45841	$\frac{.66331}{9.66335}$.46059 .46063	$\frac{.66536}{9.66539}$.46276 .46280	$\frac{.66740}{9.66743}$.46494 .46498	0.66943	.46712	5
57	.66133	.45849	.66338	.46066	.66543	.46284	.66747	.46501	$9.66946 \\ .66949$.46715 .46719	3
58	.66136	.45852	.66342	.46070	.66546	.46287	.66750	.46505	.66953	46723	2
59	.66140	.45856	.66345	.46073	.66550	.46291	.66753	.46509	.66956	.46726	1
+ 15'	9.66143	.45860	9.66348	.46077	9.66553	.46295	9.66757	.46512	9.66959	.46730	0
	18h	19m	18h	18m	18h	17m	18h	16m	18h	15^m	
L											

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TABLE 45.

	5h 45m	86° 15′	5h 46m	86° 30′	5h 47m	86° 45′	5h 48m	87° 0′	5h 49m	87° 15′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	9.66959	.46730	9.67161	.46948	9.67362	.47165	9.67562	.47383	9.67762	.47601	60
1	.66963	.46733	.67165	.46951	.67366	.47169	.67566	.47387	.67765	.47605	59
2	.66966	.46737	.67168	.46955	.67369	.47173	.67569	.47390	.67768	.47608	58
3	.66970	.46741	.67171	.46958	.67372	.47176	.67572	.47394	.67772	.47612	57.
+ 1'	9.66973	46744	9.67175	.46962	9.67376	.47180	9.67576	.47398	9.67775	.47616	56
5 6	.66976	.46748 .46752	.67178 .67181	.46966 .46969	.67379 .67382	.47184 .47187	.67579 .67582	.47401 .47405	.67778 .67782	.47619 .47623	55 54
7	.66983	.46755	.67185	.46973	.67386	.47191	.67586	.47409	.67785	47627	53
+ 2'	9.66986	.46759	9.67188	.46977	9.67389	.47194	9.67589	.47412	9.67788	.47630	52
9~	.66990	.46762	.67192	.46980	.67392	.47198	.67592	.47416	.67792	.47634	51
10	.66993	.46766	.67195	.46984	.67396	.47202	.67596	.47420	.67795	.47637	50
11	.66997	.46770	.67198	.46987	.67399	.47205	.67599	.47423	.67798	.47641	49
+ 3′	9.67000	.46773	9.67202	.46991	9.67402	.47209	9.67602	.47427	9.67801	.47645	48
13	.67003	.46777	.67205	.46995	.67406	.47213	.67606	.47430	.67805	.47648	47
14	.67007	.46781	.67208	.46998	.67409	.47216	.67609	.47434	.67808	.47652 .47656	46
$\frac{15}{+4'}$	$\frac{.67010}{9.67013}$.46784 .46788	$\frac{.67212}{9.67215}$.47002	$\frac{.67412}{0.67416}$.47220	.67612	.47438	.67811	.47659	45
+ 4'	.67013	.46792	.67218	.47006 .47009	$9.67416 \\ .67419$.47223 .47227	$9.67616 \\ .67619$.47445	9.67815 .67818	.47663	44 43
18	.67020	.46795	.67222	.47013	.67422	.47231	.67622	.47449	.67821	.47666	42
19	.67023	.46799	.67225	.47017	.67426	.47234	.67626	.47452	.67825	.47670	41
+ 5'	9.67027	.46802	9.67228	.47020	9.67429	.47238	9.67629	.47456	9.67828	.47674	40
21	.67030	.46806	.67232	.47024	.67432	.47242	.67632	.47459	.67831	.47677	39
22	.67034	.46810	.67235	.47027	.67436	.47245	.67636	.47463	.67835	.47681	38
23	.67037	.46813	.67238	.47031	.67439	.47249	.67639	.47467	.67838	.47685	37
+ 6'	9.67040	.46817	9.67242	.47035	9.67443	.47252	9.67642	.47470	9.67841	.47688	36
25 26	.67044 .67047	.46821 .46824	.67245 .67249	.47038 .47042	.67446	.47256 .47260	.67646	.47474	.67844	.47692 .47696	35
27	.67050	.46828	.67252	.47046	.67449 .67452	.47263	.67649 .67652	.47481	.67851	47699	33
+ 7	9.67054	.46831	9.67255	.47049	9.67456	.47267	9,67656	.47485	9.67854	.47703	32
29	.67057	.46835	.67259	.47053	.67459	47271	.67659	.47489	.67858	.47706	31
30	.67060	.46839	.67262	.47056	.67462	.47274	.67662	.47492	.67861	.47710	30
31	.67064	.46842	.67265	.47060	.67466	.47278	.67666	.47496	.67864	.47714	29
+ 8'	9.67067	.46846	9.67269	.47061	9.67469	.47282	9.67669	.47499	9.67868	.47717	28
33	.67071	.46850	.67272	.47067	.67472	.47285	.67672	.47503	.67871	.47721	27
34 35	.67074	.46853 .46857	.67275	47071	.67476	47289	.67675	47507	.67874	47725	26
I	$\frac{.67077}{9.67081}$.46860	$\frac{.67279}{9.67282}$.47075	.67479	.47292	.67679	.47510	.67878	.47728	25
+ 9'	.67084	.46864	.67285	.47082	9.67483 .67486	.47296 .47309	9.67682 .67685	.47514	$9.67881 \\ .67884$.47735	23
38	.67087	.46868	.67289	.47086	.67489	.47303	.67689	.47521	.67887	.47739	22
39	.67091	.46871	.67292	.47089	.67493	.47307	.67692	.47525	.67891	.47743	21
+ 10'	9.67094	.46875	9.67295	.47093	9.67496	.47311	9.67695	.47528	9.67894	.47746	20
41	.67097	.46879	.67299	.47096	.67499	.47314	.67699	.47532	.67897	.47750	19
42	.67101	.46882	.67302	.47100	.67503	.47318	.67702	.47536	.67901	.47754	18
43	.67104	46886	.67305	.47104	.67506	.47321	.67705	.47539	.67904	.47757	17
+ 11'	9.67108	.46890	9.67309 $.67312$.47107	9.67509	47325	9.67709	47543	9.67907	47761	16
45 46	.67111 .67114	.46893 .46897	.67312	.47111	.67512 .67516	.47329	.67712 .67715	.47547	.67911	.47765 .47768	15 14
47	.67118	.46900	.67319	.47118	.67519	.47336	.67719	.47554	.67917	47772	13
+ 12'	9.67121	.46904	9.67322	.47122	9.67522	.47340	9.67722	.47558		.47775	12
49	.67124	.46908	.67326	.47125	.67526	.47343	.67725	.47561	.67924	.47779	11
50	.67128	.46911	.67329	.47129	.67529	.47347	.67729	.47565	.67927	.47783	10
51	.67131	.46915	.67332	.47123	.67532	.47351	.67732	.47568	.67930	.47786	9
+ 13′	9.67134	.46919	9.67336	.47136	9.67536	.47354	9.67735	.47572	9.67934	.47790	8
53 54	.67138 .67141	.46922 .46926	.67339 .67342	.47140	.67539	47358	.67738	47576	67937	.47794 .47797	6
55	.67141	.46929	.67346	.47147	.67542 .67546	.47361 .47365	.67742 .67745	.47579 .47583	.67940 .67944	.47801	5
+ 14'	9.67148	.46933	$\frac{.67340}{9.67349}$.47151	$\frac{.07540}{9.67549}$.47369	9.67748	.47587	9.67947	.47805	4
57	.67151	.46937	.67352	.47155	.67552	.47372	.67752	47590	.67950	.47808	3
58	.67155	.46940	.67356	.47158	.67556	.47376	.67755	.47594	.67953	.47812	2
59	.67158	.46944	.67359	.47162	.67559	.47380	.67758	.47597	.67957	.47815	1
+ 15'	9.67161	.46948	9.67362	.47165	9.67562	.47383	9.67762	.47601	9.67960	.47819	0
	101	14m	101	13m	10%	12m	101	1 1m	10h	10m	
	18"	14"	1811	15"	18"	1211	18h	11m	18"	1000	

	5h 50m 87° 30′		. 3		naversii	ues.					
	5h 50m	87° 30′	5h 51m	87° 45′	5h 52m	88° 0′	5h 53m	88° 15 ′	5h 54m	88° 30′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	9.67960	.47819	9.68158	.48037	9.68354	.48255	9.68550	.48473	9.68745	.48691	60
1	.67963	.47823	.68161	.48041	.68358	.48259	.68553	.48477	.68748	.48695	59
2	.67967	.47826	.68164	.48044	.68361	.48262	.68557	.48480 .48484	.68751 .68755	.48698 .48702	58 57
3	.67970	.47830	.68167	.48048	$\frac{.68364}{9.68367}$.48266	$\frac{.68560}{9.68563}$.48188	9.68758	.48706	56
$+\frac{1}{5}$	9.67973 $.67977$.47834 .47837	$9.68171 \\ .68174$.48052 .48055	.68371	.48273	.68566	.48491	.68761	.48709	55
6	.67980	.47841	.68177	.48059	.68374	48277	.68570	.48495	.68764	.48713	54
7	.67983	.47844	.68181	.48062	.68377	.48280	.68573	.48499	.68768	.48717	53
+ 2'	9.67986	.47848	9.68184	.48066	9.68380	.48284	9.68576	.48502	9.68771	.48720	52
9	.67990	.47852	.68187	.48070	.68384	.48288	.68579	.48506	.68774	.48724	51
10	.67993	.47855	.68190	.48073	.68387	.48291	.68583	.48509	.68777	48728	50
11	.67996	.47859	.68194	.48077	.68390	.48295	.68586	.48513	.68781	.48731	49
$+\frac{3'}{13}$	9.68000 .68003	.47863 .47866	$9.68197 \\ .68200$.48081 .48084	9.68393 .68397	.48299 .48302	$9.68589 \\ .68592$.48517 .48520	$9.68784 \\ .68787$.48738	47
14	.68006	47870	.68204	.48088	.68400	.48306	.68596	.48524	.68790	.48742	46
15	.68010	.47874	.68207	.48092	.68403	.48310	.68599	.48528	.68794	.48746	45
+ 4'	9.68013	.47877	9.68210	.48095	9.68407	.48313	9.68602	.48531	9.68797	.48749	44
17	.68016	.47881	.68213	.48099	.68410	.48317	.68605	.48535	.68800	.48753	43
18	.68019	.47884	.68217	.48102	.68413	.48320	.68609	.48538	.68803	.48757 .48760	42
19	.68023	.47888	.68220	.48106	.68416	.48324	.68612	$\frac{.48542}{.48546}$	$\frac{.68806}{9.68810}$.48764	$\frac{41}{40}$
+ 5'	$9.68026 \\ .68029$.47892 .47895	$9.68223 \\ .68227$.48110 .48113	9.68420 .68423	.48328 .48331	$9.68615 \\ .68618$.48549	.68813	.48767	39
22	.68033	.47899	.68230	.48117	.68426	.48335	.68622	.48553	.68816	.48771	38
23	.68036	.47903	.68233	.48121	.68429	.48339	.68625	.48557	.68820	.48775	37
+ 6'	9.68039	.47906	9.68236	.48124	9.68433	.48342	9.68628	.48560	9.68823	.48778	36
25	.68042	.47910	.68240	.48128	.68436	.48346	.68631	.48564	.68826	.48782	35
26	.68046	.47913	.68243	.48131	.68439 .68442	.48350	.68635 .68638	.48568 .48571	.68829 $.68832$.48786 .48789	34 33
+ 7'	$\frac{.68049}{9.68052}$.47917 .47921	$\frac{.68246}{9.68249}$	$\frac{.48135}{.48139}$	9.68446	.48353	9.68641	.48575	9.68836	.48793	32
+ 7'	.68056	47924	.68253	.48142	.68449	.48360	.68644	.48578	.68839	48797	31
30	.68059	47928	.68256	.48146	.68452	.48364	.68648	.48532	.68842	.48800	30
31	.68062	.47932	.68259	.48150	.68456	.48368	.68651	.48586	.68845	.48804	29
+ 8'	9.68066	.47935	9.68263	.48153	9.68459	.48371	9.68654	.48589	9.68849	.48807	28
33	.68069	.47939	.68266	.48157 .48161	.68462	.48375	.68657 $.68661$.48593 .48597	.68852 $.68855$.48811	27 26
34 35	.68072 .68075	.47943 .47946	.68269 $.68272$.48161	.68465	.48379 .48382	.68664	.48600	.68858	.48818	25
+ 9'	9.68079	.47950	9.68276	.48168	9.68472	.48386	9.68667	.48604	9.68862	.48822	24
37	.68082	.47953	.68279	.48171	.68475	.48389	.68670	.48608	.68865	.48826	23
38	.68085	.47957	.68282	.48175	.68478	.48393	.68674	.48611	.68868	.48829	22
39	.68089	.47961	.68286	.48179	.68482	.48397	.68677	.48615	.68871	.48833	21
+ 10′	9.68092	.47964	9.68289	.48182	9.68485	.48400	9.68680	.48618	9.68875	.48837	20
41 42	.68095	.47968 .47972	.68292 .68295	.48186 .48190	.68488 .68491	.48404	.68683	.48622 .48626	.68878 .68881	.48840	19 18
43	.68102	.47975	.68299	.48193	.68495	.48411	.68690	.48629	.68884	.48847	17
+ 11'	9.68105	.47979	9.68302	.48197	9.68498	.48415	9.68693	.48633	9.68887	.48851	16
45	.68108	.47983	.68305	.48201	.68501	.48419	.68696	.48637	.68891	.48855	15
46	.68112	.47986	.68308	.48204	.68504	.48422	.68700	.48640	.68894	.48858	14
47	.68115	.47990	.68312	.48208	.68508	.48426	.68703	.48644	.68897	.48862	13
+ 12 ′	$9.68118 \\ .68121$.47993 .47997	$9.68315 \\ .68318$.48211 .48215	9.68511	.48429 .48433	9.68706 .68709	.48648 .48651	$9.68900 \\ .68904$.48866 .48869	12 11
50	.68125	.48001	.68322	.48219	.68517	.48437	.68713	.48655	.68907	.48873	10
51	.68128	.48004	.68325	.48222	.68521	.48440	.68716	.48658	.68910	.48877	9
+ 13′	9.68131	.48008	9.68328	.48226	9.68524	.48444	9.68719	.48662	9.68913	.48880	8
53	.68135	.48012	.68331	.48230	.68527	.48448	.68722	.48666	.68917	.48884	7
54 55	.68138	.48015 .48019	.68335 .68338	.48233 .48237	.68531 .68534	.48451	.68726 .68729	.48669 .48673	.68920 .68923	.48887 .48891	6 5
+ 14'	9.68144	.48022	9.68341	.48241	9.68537	.48459	$\frac{.03723}{9.68732}$.48677	$\frac{0.0323}{9.68926}$.48895	4
57	.68148	.48026	.68344	.48244	.68540	.48462	.68735	.48680	.68929	.48898	3
5 8	.68151	.48030	.68348	.48248	.68544	.48466	.68739	.48684	.68933	.48902	2
59	.68154	.48033	.68351	.48251	.68547	.48469	.68742	.46688	.68936	.48906	1
+ 15'	9.68158	.48037	9.68354	.48255	9.68550	.48473	9.68745	.48691	9.68939	.48909	0
	18h	9m	18h	8m	18h	7m	18h	6m	18h	5m	
					•						

					naversn	ues.					
	5h 55m	88° 45′	5h 56m	89° 0′	5h 57m	89° 15′	5h 58m	89° 30′	5h 59m	89° 45′	
8	Log. Hav.	Nat. Hav.	g								
0	9.68939	.48909	9.69132	.49127	9.69325	.49346	9.69516	.49564	9.69707	.49782	60
1	.68942	.48913	.69136	.49131	.69328	.49349	.69520	.49567	.69710	.49785	59
2 3	.68946 .68949	.48917 .48920	.69139 .69142	.49135 .49138	.69331 .69334	.49353 .49356	.69523 .69526	.49571 .49575	.69713 .69717	.49789 .49793	58 57
+ 1'	9.68952	.48924	9.69145	.49142	9.69338	.49360	9.69529	.49578	9.69720	.49796	56
5	.68955	.48927	.69148	.49146	.69341	.49364	.69532	.49582	.69723	.49800	55
6 7	.68958 .68962	.48931 .48935	.69152 .69155	.49149 .49153	.69344	49367	.69535	.49585	.69726	.49804 .49807	54 53
+ 2'	9.68965	.48938	9.69158	.49156	$\frac{.69347}{9.69350}$.49371	$\frac{.69539}{9.69542}$.49589	$\frac{.69729}{9.69732}$.49811	52
. 9	.68968	.48942	.69161	.49160	.69354	.49378	.69545	.49596	.69736	.49815	51
10	.68971	.48946 .48949	.69164	.49164	.69357	.49382	.69548	49600	.69739	49818	50
$\frac{11}{+3'}$	$\frac{.68975}{9.68978}$.48953	$\frac{.69168}{9.69171}$.49167	$\frac{.69360}{9.69363}$.49386 .49389	.69551	.49604	$\frac{.69742}{9.69745}$.49822	49
13	.68981	.48957	.69174	.49175	.69366	.49393	9.69555	.49611	.69748	.49829	47
14	.68984	.48960	.69177	.49178	.69370	.49396	.69561	.49615	.69751	.49833	46
15	.68988	.48964	.69181	.49182	.69373	.49400	.69564	.49618	.69755	.49836	45
+ 4'	9.68991	.48967	9.69184	.49186	9.69376	.49404	9.69567	.49622	9.69758	.49840	44
17	.68994	.48971	.69187	.49189	.69379	.49407	.69570	.49625	.69761	.49844	43
18 19	.68997 .69000	.48975 .48978	.69190 .69193	.49193 .49196	.69382 .69386	.49411	.69574 .69577	.49629 .49633	.69764 .69767	.49847 .49851	41
$+\frac{5'}{}$	9.69004	.48982	9.69197	.49200	9.69389	.49418	9.69580	.49636	9.69770	.49855	40
21	.69007	.48986	.69200	.49204	.69392	.49422	.69583	.49640	.69774	.49858	39
22	.69010	.48989	.69203	.49207	.69395	.49426	.69586	.49644	.69777	.49862	38
23	.69013	.48993	.69206	.49211	.69398	.49429	.69590	.49647	.69780	.49865	37
+ 6'	9.69017	.48997	9.69209	.49215	9.69402	.49433	9.69593	.49651	9.69783	.49869	36
25 26	.69020	.49000 .49004	.69213 .69216	.49218 .49222	.69405 .69408	.49436 .49440	.69596 .69599	.49655 .49658	.69786 .69789	.49873 .49876	35 34
27	.69026	.49007	.69219	.49226	.69411	.49444	.69602	.49662	.69793	.49880	33
+ 7'	9,69029	.49011	9.69222	.49229	9.69414	.49447	9.69605	.49665	9.69796	.49884	32
29	.69033	.49015	.69225	.49233	.69417	.49451	.69609	.49669	.69799	.49887	31
30	.69036	.49018	.69229	.49236	.69421	.49455	.69612	.49673	.69802	.49891	30
31	.69039	.49022	.69232	.49240	.69424	.49458	.69615	.49676	.69805	.49895	29
$+\frac{8'}{33}$	9.69042	.49026 .49029	9.69235	.49244 .49247	9.69427 $.69430$.49462	9.69618 $.69621$.49680 .49684	9.69808 .69812	.49898 .49902	28 27
34	.69049	.49033	.69242	.49251	.69433	.49469	.69625	.49687	.69815	.49905	26
35	.69052	.49036	.69245	.49255	.69437	.49473	.69628	.49691	.69818	.49909	25
+ 9'	9.69055	.49040	9.69248	.49258	9.69440	.49476	9.69631	.49695	9.69821	.49913	24
37	.69058	.49044	.69251	.49262	.69443	.49480	.69634	.49698	.69824	.49916	23
38 39	.69062 .69065	.49047 .49051	.69254	.49266 .49269	.69446	.49484	.69637 .69640	.49702 .49705	.69827 .69831	.49920 .49924	22 21
+ 10'	9.69068	.49055	9.69261	.49273	9.69453	.49491	9.69644	.49709	9.69834	.49927	20
41	.69071	.49058	.69264-	49276	.69456	49495	.69647	.49713	.69837	49931	19
42	.69074	.49062	.69267	.49280	.69459	.49498	.69650	.49716	.69840	.49935	18
43	.69078	.49066	.69270	.49284	.69462	.49502	.69653	.49720	.69843	.49938	17
+ 11'	9.69081 $.69084$.49069 .49073	$9.69274 \\ .69277$.49287 .49291	9.69465	49506	9.69656	.49724	9.69846	.49942 .49945	16 15
45 46	.69084	.49076	.69277	.49291	.69469	.49509 .49513	.69659	.49727 .49731	.69853	.49949	14
47	.69091	.49080	.69283	.49298	.69475	.49516	.69666	.49735	.69856	.49953	13
+ 12'	9.69094	.49084	9.69286	.49302	9.69478	.49520			9.69859	.49956	12
49	.69097	.49087	.69290	.49306	.69481	.49524	.69672	.49742	.69862	.49960	11
50	.69100	49091	.69293	49309	.69484	.49527	.69675	.49745	.69865	.49964 .49967	10
$+\frac{51}{+13'}$.69103 9.69107	.49095 .49098	$\frac{.69296}{9.69299}$.49313 .49316	69488 9.69491	.49531	$\frac{.69678}{9.69682}$.49749	$\frac{.69869}{9.69872}$.49971	8
53	.69110	.49102	.69302	.49320	0.09491 0.69494	.49538	.69685	.49756	.69875	.49975	7
54	.69113	.49106	.69306	.49324	.69497	.49542	.69688	.49760	.69878	.49978	6
55	.69116	.49109	.69309	.49327	.69500	.49545	.69691	.49764	.69881	.49982	5
+ 14'	9.69120	.49113	9.69312	.49331	9.69504	.49549	9.69694	.49767	9.69884	.49985	4
57 58	.69123 .69126	.49116 .49120	.69315 .69318	.49335 .49338	.69507 .69510	.49553 .49556	.69698 .69701	.49771 .49775	.69888 .69891	.49989 .49993	3 2
59	.69129	.49124	.69322	.49342	.69513	.49560	.69704	49778	.69894	.49997	1
+ 15'	9.69132	.49127	9.69325	.49346	9.69516	.49564	9.69707	.49782	9.69897	.50000	0
	101	4m	10h	3m	101	2m	103	1m	18h	Om	
	1811	4	18"	J."	18"	2"	18"	1	10"	J	

	6h 0m	90° 0′	6h 1m	90° 15′	6h 2m	90° 30′	6h 3m	80° 45′	6h 4m	91° 0′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.69897	.50000	9.70086	.50218	9.70274	.50436	9.70462	.50654	9.70648	.50873	60
1	.69900	.50004	.70089	.50222	.70277	.50440	.70465	.50658	.70652	.59876	59
2	.69903	.50007	.70092	.50225	.70281	.50444	.70468	.50662	.70655	.50880	58
3	.69906	.50011	.70096	.50229	.70284	.50447	.70471	.50665	.70658	.50884	57
+ 1'	9.69910	.50015	9.70099	.50233 .50236	9.70287	.50451	9.70474	.50669	9.70661	.50887	56
5 6	.69913 .69916	.50018 .50022	.70102 .70105	.50240	.70290 .70293	.50455 .50458	.70477 .70480	.50673 .50676	.70664 .70667	.50891 .50894	55 54
7	.69919	.50025	.70108	.50244	.70296	.50462	.70484	.50680	.70670	.50898	53
+ 2'	9.69922	.50029	9.70111	.50247	9.70299	.50465	9.70487	.50684	9.70673	.50902	52
9	.69925	.50033	.70114	.50251	.70303	.50469	.70490	.50687	.70676	.50905	51
10	.69929	.50036	.70118	.50255	.70306	.50473	.70493	.50691	.70679	.50909	50
11	.69932	.50040	.70121	.50258	.70309	.50476	.70496	.50694	.70683	.50913	49
+ 3′	9.69935	.50044	9.70124	.50262	9.70312	.50480	9.70499	.50698	9.70686	.50916	48
13	.69938	.50047	.70127	.50265	.70315	.50484	70502	.50702 .50705	.70689	.50920	47
14 15	.69941 $.69944$.50051 .50055	.70130 .70133	.50269	.70318 .70321	.50487 .50491	.70505 .70509	.50709	.70692 .70695	.50924	46 45
+ 4'	9.69948	.50058	9.70136	.50276	$\frac{.70321}{9.70324}$.50495	9.70512	.50713	$\frac{.70698}{9.70698}$.50931	44
17	.69951	.50062	.70140	.50280	.70324	.50498	.70515	.50716	.70701	.50934	43
18 .	.69954	.50065	.70143	.50284	.70331	.50502	.70518	.50720	.70704	.50938	42
19	.69957	.50069	.70146	.50287	.70334	.50505	.70521	.50724	.70707	.50942	41
+ 5'	9.69960	.50073	9.70149	.50291	9.70337	.50509	9.70524	.50727	9.70710	.50945	40
21	.69963	.50076	.70152	.50295	.70340	.50513	.70527	.50731	.70714	.50949	39
22 23	.69966	.50080 .50084	.70155 .70158	.50298 .50302	.70343 .70346	.50516 .50520	.70530 .70533	.50734	.70717 .70720	.50953 .50956	38 37
+ 6'	9.69973	.50087	9.70161	.50305	9.70349	.50524	9.70537	.50742	9.70723	.50960	36
25	.69976	.50091	.70165	.50309	.70353	.50527	.70540	.50745	.70726	.50964	35
26	.69979	.50095	.70168	.50313	.70356	.50531	.70543	.50749	.70729	.50967	34
27	.69982	.50098	.70171	.50316	.70359	.50534	.70546	.50753	.70732	.50971	33
+ 7'	9.69985	.50102	9.70174	.50320	9.70362	.50538	9.70549	.50756	9.70735	.50974	32
29	.69988	.50105	.70177	.50324	.70365	.50542	.70552	.50760	.70738	.50978	31
30	.69992	.50109	.70180	.50327	.70368	.50545	.70555	.50764	.70741	.50982	30
$\frac{31}{+8'}$.69995	.50113	$\frac{.70183}{9.70187}$.50331	.70371 9.70374	.50549	.70558	.50767	$\frac{.70745}{9.70748}$.50985 .50989	29
+ 33	9.69998	.50110	.70190	.50338	.70374	.50553 .50556	9.70561	.50771	.70751	.50993	28 27
34	.70004	.50124	.70193	.50342	.70381	.50560	.70568	.50778	.70754	.50996	26
35	.70007	.50127	.70196	.50345	.70384	.50564	.70571	.50782	.70757	.51000	25
+ 9'	9.70011	.50131	9.70199	.50349	9.70387	.50567	9.70574	.50785	9.70760	.51004	24
37	.70014	.50135	.70202	.50353	.70390	.50571	.70577	.50789	.70763	.51007	23
38	.70017	.50138	.70205	.50356	.70393	.50574	.70580	.50793	.70766	.51011	22
39	.70020	.50142	.70209	.50360	.70396	.50578	.70583	.50796	.70769	.51014	21
+ 10'	9.70023 .70026	.50145 .50149	$9.70212 \\ .70215$.50364 .50367	9.70399 $.70402$.50582 .50585	$9.70586 \\ .70589$.50800 .50804	9.70772 .70775	.51018 .51022	20
41 42	.70020	.50143	.70213	.50371	.70402	.50589	.70593	.50807	.70779	.51025	18
43	.70033	.50156	.70221	.50375	.70409	.50593	.70596	.50811	.70782	.51029	17
+ 11'	9.70036	.50160	9.70224	.50378	9.70412	.50596	9.70599	.50814	9.70785	.51033	16
45	.70039	.50164	.70227	.50382	.70415	.50600	.70602	.50818	.70788	.51036	15
46	.70042	.50167	.70230	.50385	.70418	.50604	.70605	.50822	.70791	.51040	14
47	.70045	.50171	.70234	.50389	.70421	.50607	.70608	.50825	.70794	.51043	13
+ 12'	9.70048 $.70051$.50175 .50178	9.70237 .70240	.50393 .50396	9.70424 .70427	.50611 .50614	9.70611	.50829 .50833	9.70797	.51047	12
50 50	.70055	.50182	.70243	.50400	.70421	.50618	.70614	.50836	.70800 .70803	.51051	11 10
51	.70058	.50185	.70246	.50404	.70434	.50622	.70620	.50840	.70806	.51058	9
+ 13'	9.70061	.50189	9.70249	.50407	9.70437	.50625	9.70624	.50844	9.70809	.51062	8
53	.70064	.50193	.70252	.50411	.70440	.50629	.70627	.50847	.70813	.51065	7
54	.70067	.50196	.70256	.50415	.70443	.50633	.70630	.50851	.70816	.51069	6
55	.70070	.50200	.70259	.50418	.70446	.50636	.70633	.50854	.70819	.51073	5
+ 14' 57	9.70074	.50204 .50207	9.70262 $.70265$.50422 .50425	9.70449 $.70452$.50640 .50644	9.70636	.50858 .50862	9.70822	.51076 .51080	4
58	.70077	.50207	.70268	.50429	.70452	.50647	.70639 .70642	.50865	.70825 .70828	.51080	3 2
59	.70083	.50215	.70271	.50433	.70459	.50651	.70645	.50869	.70831	.51087	1
+ 15'	9.70086	.50218	9.70274	.50436	9.70462	.50654	9.70648	.50873	9.70834	.51091	0
								1		1	
	17h	59m	17h	58m	17h	57m	17h	56m	17h	55m	
			-			-					

	-7	040 454	03.000.0	40.007		040 484	-7		., .		0
	6h 5m	91° 15′	6h 6m	01° 30′	6h 7m	91° 45′	6h 8m	920 0	6h 9m	92° 15′	
S	Log. Hav.	Nat. Hav.	s.								
0	9.70834	.51091	9.71019	.51309	9.71203	.51527	9.71387	.51745	9.71569	.51963	60
1	.70837	.51094	.71022	.51312	.71206	.51531	.71390	.51749	.71572	.51967	59
2	.70840	.51098 .51102	.71025	.51316 .51320	.71210 .71213	.51534	.71393 .71396	.51752	.71575	.51970	58
$\frac{3}{+1'}$	$\frac{.70843}{9.70847}$.51105	$\frac{.71028}{9.71032}$.51323	$\frac{.71213}{9.71216}$.51538	9.71399	.51756	$\frac{.71579}{9.71582}$.51974	57
$+ \frac{1}{5}$.70850	.51105	.71032	.51327	0.71210 $.71219$.51545	.71402	.51763	0.71582 $.71585$.51981	56 55
6	.70853	.51113	.71038	.51331	.71222	.51549	.71405	.51767	.71588	.51985	54
7	.70856	.51116	.71041	.51334	.71225	.51552	.71408	.51770	.71591	.51988	53
+ 2'	9.70859	.51120	9.71044	.51338	9.71228	.51556	9.71411	.51774	9.71594	.51992	52
9	.70862	.51123	.71047	.51342	.71231	.51560	.71414	.51778	.71597	.51996	51
10	.70865	.51127	.71050	.51345	.71234	.51563	.71417	.51781	.71600	.51999	50
$\frac{11}{+3'}$.70868	.51131	.71053	.51349	$\frac{.71237}{9.71240}$.51567	$\frac{.71420}{0.71492}$.51785	.71603	.52003	49
+ 3'	9.70871 .70874	.51134 .51138	9.71056 .71059	.51356	0.71240 $.71243$.51571 .51574	9.71423 $.71426$.51789 .51792	9.71606 .71609	.52007 .52010	48 47
14	.70877	.51142	.71062	.51360	.71246	.51578	.71430	.51796	.71612	.52014	46
15	.70881	.51145	.71065	.51363	.71249	.51581	.71433	.51799	.71615	.52018	45
+ 4'	9.70884	.51149	9.71068	.51367	9.71252	.51585	9.71436	.51803	9.71618	.52021	44
17	.70887	.51153	.71072	.51371	.71255	.51589	.71439	.51807	.71621	.52025	43
18	.70890	.51156	.71075	.51374	.71259	.51592	.71442	.51810	.71624	.52028	42
19	.70893	.51160	.71078	.51378	.71262	.51596	.71445	.51814	.71627	.52032	41
+ 5'	9.70896 .70899	.51163 .51167	9.71081 .71084	.51382 .51385	$9.71265 \\ .71268$.51600 .51603	9.71448 $.71451$.51818 .51821	9.71630 $.71633$.52036 .52039	40 39
22	.70992	.51171	.71084	.51389	.71203	.51607	.71451	.51825	.71636	.52043	38
23	.70905	.51174	.71090	.51392	.71274	.51611	.71457	.51829	.71639	.52047	37
+ 6'	9.70908	.51178	9.71093	.51396	9.71277	.51614	9.71460	.51832	9.71642	.52050	36
25	.70911	.51182	.71096	.51400	.71280	.51618	.71463	.51836	.71645	.52054	35
26	.70914	.51185	.71099	.51403	.71283	.51621	.71466	.51839	.71648	.52057	34
+ 7'	$\frac{.70918}{9.70921}$.51189 .51193	$\frac{.71102}{9.71105}$.51407	$\frac{.71286}{9.71289}$.51625	$\frac{.71469}{9.71472}$.51843	$\frac{.71651}{9.71654}$.52061 .52065	33
+ 7	.70924	.51196	.71103	.51414	.71292	.51632	.71475	.51850	.71657	.52068	31
30	.70927	.51200	.71111	.51418	.71295	.51636	.71478	.51854	.71660	.52072	30
31	.70930	.51203	.71114	.51422	.71298	.51640	.71481	.51858	.71663	.52076	29
+ 8'	9.70933	.51207	9.71118	.51425	9.71301	.51613	9.71484	.51861	9.71666	.52079	28
33	.70936	.51211	.71121	.51429	.71304	.51647	.71487	.51865	.71670	.52083	27
34 35	.70939 .70942	.51214	.71124 .71127	.51432 .51436	.71307 .71311	.51650 .51654	.71490 .71493	.51869	.71673	.52087 .52090	26 25
+ 9'	9.70945	.51222	9.71130	.51440	9.71314	.51658	9.71496	.51876	9.71679	.52094	24
37	.70948	.51225	.71133	.51443	.71317	.51661	.71500	.51879	.71682	.52097	23
38	.70951	.51229	.71136	.51447	.71320	.51665	.71503	.51883	.71685	.52101	22
39	.70955	.51233	.71139	.51451	.71323	.51669	.71506	.51887	.71688	.52105	21
+ 10′	9.70958	.51236	9.71142	.51454	9.71326	.51672	9.71509	.51890	9.71691	.52108	20
41	.70961 .70964	.51240 .51243	.71145 .71148	.51458 .51462	.71329 .71332	.51676 .51680	.71512 .71515	.51894 .51898	.71694 .71697	.52112 .52116	19 18
43	.70967	.51247	.71151	.51465	.71335	.51683	.71518	.51901	.71700	.52119	17
+ 11'	9.70970	.51251	9.71154	.51469	9.71338	.51687	9.71521	.51905	9.71703	.52123	16
45	.70973	.51254	.71157	.51472	.71341	.51690	.71524	.51908	.71706	.52126	15
46	.70976	.51258	.71161	.51476	.71344	.51694	.71527	.51912	.71709	.52130	14
47	.70979	.51262	.71164	.51480	.71347	.51698	.71530	.51916	.71712	52134	13
+ 12'	$9.70982 \\ .70985$.51265 .51269	9.71167 .71170	.51483 .51487	$9.71350 \\ .71353$.51701 .51705	9.71533 $.71536$.51919 .51923	9.71715 .71718	.52137 .52141	12
50 50	.70988	.51273	.71173	.51491	.71356	.51709	.71539	.51927	.71721	.52145	10
51	.70992	.51276	.71176	.51494	.71359	.51712	.71542	.51930	.71724	.52148	19
+ 13'	9.70995	.51280	9.71179	.51498	9.71362	.51716	9.71545	.51934	9.71727	.52152	8
53	.70998	.51283	.71182	.51501	.71365	.51720	.71548	.51938	.71730	.52156	. 7
54 55	.71001 .71004	.51287 .51291	.71185 .71188	.51505 .51508	.71369 .71372	.51723	.71551	.51941	.71733 .71736	.52159 .52163	6
$\frac{33}{+14'}$	9.71004	.51294	9.71191	.51512	9.71375	.51730	$\frac{.71554}{9.71557}$.51948	$\frac{.71736}{9.71739}$.52166	5 4
57	.71010	.51298	.71194	.51516	.71378	.51734	.71560	.51948	.71742	.52170	3
58	.71013	.51302	.71197	.51520	.71381	.51738	.71563	.51956	.71745	.52174	2
59	.71016	.51305	.71200	.51523	.71384	.51741	.71566	.51959	.71748	.52177	_1
+ 15'	9.71019	.51309	9.71203	.51527	9.71387	.51745	9.71569	.51963	9.71751	.52181	0
	17h	54m	17h	53m	17h	52m	17h	51m	17h	50m	

	6h 10m	92° 30′	6h 11m	92° 45′	6h 12m	93° 0′	6h 13m	93° 15′	6h 14m	93° 30′	
s	Log. Hav.		Log. Hav.	Nat. Hav.	Log. Hav.		Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.71751	.52181	9.71932	.52399	9.72112	.52617	9.72292	.52835	9.72471	.53052	60
1	.71754	.52185	.71935	.52403	.72115	.52620	.72295	.52838	.72474	.53056	59
2	.71757	.52188	.71938	.52406	.72118	.52624	.72298	.52842	.72476	.53060 .53063	58
3	.71760	.52192	.71941	.52410	9.72124	.52628 .52631	$\frac{.72301}{9.72304}$.52846 .52849	$\frac{.72479}{9.72482}$.53967	$\frac{57}{56}$
+ 1'	9.71763 .71766	.52196 .52199	9.71944	.52413 .52417	.72124	.52635	.72304	.52853	.72485	.53071	55
6	.71769	.52203	.71950	.52421	.72130	.52639	.72310	.52856	.72488	.53074	54
7	.71772	.52206	.71953	.52424	.72133	.52642	.72313	.52860	.72491	.53078	53
+ 2'	9.71775	.52210	9.71956	.52428	9.72136	.52646	9.72316	.52864	9.72494	.53081	52
9	.71778	.52214	.71959 .71962	.52432 .52435	.72139 .72142	.52649 .52653	.72319 .72322	.52867 .52871	.72497 .72500	.53085 .53089	51 50
10 11	.71781	.52217 .52221	.71965	.52439	.72145	.52657	.72325	.52875	.72503	.53092	49
+ 3'	9.71787	.52225	9.71968	.52442	9.72148	.52660	9.72328	.52878	9.72506	.53996	48
13	.71791	.52228	.71971	.52446	.72151	.52664	.72331	.52882	.72509	.53100	47
14	.71794	.52232	.71974	.52450	.72154	.52668	.72334	.52885	.72512	.53103	46
15	.71797	.52235	.71977	.52453	.72157	.52671	.72337	.52889	$\frac{.72515}{0.79519}$.53107	45
+ 4'	9.71800	.52239 .52243	9.71980 .71983	.52457 .52461	9.72160 $.72163$.52675 .52679	$9.72340 \\ .72343$.52893 .52896	9.72518 $.72521$.53110 .53114	44 43
18	.71806	.52246	.71986	.52464	.72166	.52682	.72346	.52900	.72524	.53118	42
19	.71809	.52250	.71989	.52468	.72169	.52686	.72349	.52904	.72527	.53121	41
+ 5'	9.71812	.52254	9 71992	.52472	9.72172	.52689	9.72352	.52907	9.72530	.53125	40
21	.71815	.52257	.71995	.52475	.72175	.52693	.72354	.52911	.72533	.53129	39
22 23	.71818 .71821	.52261 .52264	.71998 .72001	.52479 .52482	.72178 .72181	.52697 .52700	.72357 .72360	.52915 .52918	.72536 .72539	.53132 .53136	38 37
$\frac{z_3}{+6'}$	$\frac{.71821}{9.71824}$.52268	$\frac{.72001}{9.72004}$.52486	9.72184	.52704	9.72363	.52922	$\frac{.72533}{9.72542}$.53140	36
25	.71827	.52272	.72007	.52490	.72187	.52708	.72366	.52925	.72545	.53143	35
26	.71830	.52275	.72010	.52493	.72190	.52711	.72369	.52929	.72548	.53147	34
27	.71833	.52279	.72013	.52497	.72193	.52715	.72372	.52933	$\frac{.72551}{0.72554}$.53150	33
+ 7'	9.71836	.52283 .52286	$9.72016 \\ .72019$.52501 .52504	9.72196 $.72199$.52718 .52722	9.72375 .72378	.52936 .52940	9.72554 .72557	.53154 .53158	32 31
29 30	.71839 .71842	.52286	.72019	.52508	.72199	.52726	.72378	.52944	.72560	.53161	30
31	.71845	.52294	.72025	.52511	.72205	.52729	.72384	.52947	.72563	.53165	29
+ 8'	9.71848	.52297	9.72028	.52515	9.72208	.52733	9.72387	.52951	9.72565	.53169	28
33	.71851	.52301	.72031	.52519	.72211	.52737	.72390	.52954	.72568	.53172	27
34	.71854	52304	.72034 .72037	.52522 .52526	.72214 .72217	.52740 .52744	.72393 .72396	.52958 .52962	.72571 .72574	.53176 .53179	26 25
$\frac{35}{+9'}$	$\frac{.71857}{9.71860}$.52308 .52312	$\frac{.72037}{9.72040}$.52530	9.72220	.52748	$\frac{.72390}{9.72399}$.52965	$\frac{.72574}{9.72577}$.53183	24
37	.71863	.52315	.72043	.52533	.72223	.52751	.72402	.52969	.72580	.53187	23
38	.71866	.52319	.72046	.52537	.72226	.52755	.72405	.52973	.72583	.53190	22
39	.71869	.52323	.72049	.52541	.72229	.52758	.72408	.52976	.72586	.53194	21
+ 10'	9.71872	.52326	9.72052	.52544	9.72232	.52762	9.72411	.52980	9.72589	.53198	20
41 42	.71875	.52330 .52334	.72055 72058	.52548 .52551	.72235 .72238	.52766	.72414 .72417	.52983 .52987	.72592 .72595	.53201	19 18
42	.71881	.52337	.72061	.52555	.72241	.52773	.72420	.52991	.72598	.53208	17
+ 11'	9.71884	.52341	9.72064	.52559	9.72244	.52776	9.72423	.52994	9.72601	.53212	16
45	.71887	.52344	.72067	.52562	.72247	.52780	.72426	.52998	.72604	.53216	15
46	.71890	.52348	.72070	.52566	.72250	.52784	.72429	.53002	.72607	.53219	14
$\frac{47}{+12'}$	$\frac{.71893}{9.71896}$.52352	$\frac{.72073}{9.72076}$.52570	$\frac{.72253}{9.72256}$.52787 .52791	$\frac{.72432}{9.72435}$.53005 .53009	$\frac{\cdot.72610}{9.72613}$.53223	$\frac{13}{12}$
+ 12' 49	.71896	.52355	.72076	.52577	.72256	.52795	9.72435 .72438	.53009	.72616	.53230	12
50	.71902	.52363	.72082	.52580	.72262	.52798	.72441	.53016	.72619	.53234	10
51	.71905	.52366	.72085	.52584	.72265	.52802	.72444	.53020	.72622	.53238	9
+ 13'	9.71908	.52370	9.72088	.52588	9.72268	.52806	9.72447	.53023	9.72625	.53241	8
53 54	.71911	.52373	.72091 .72094	.52591	.72271 .72274	.52809 .52813	.72450 .72453	.53027	.72628 .72631	.53245 .53248	6
54 55	.71914 .71917	.52381	.72094	.52599	.72274	.52816	.72456	.53034	.72634	.53252	5
+ 14'	9.71920	.52384	9.72100	.52602	9.72280	.52820	9.72459	.53038	9.72637	.55256	4
57	.71923	.52388	.72103	.52606	.72283	.52824	.72462	.53042	.72640	.53259	3
58	.71926	.52392	.72106	.52610	.72286	.52827	.72465	.53045	.72642	.53263	2
59	.71929	.52395	.72119	.52613	.72289	.52831	.72468	.53049	72645	.53267	1
+ 15'	9.71932	.52399	9.72112	.52617	9.72292	.52835	9.72471	.53052	9.72648	.53270	0
	17h	49m	17h	48m	17h	47m	17h	46m	17h	45m	

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TABLE 45.

	6h 15m	93° 45′	6h 16m	94° 0′	6h 17m	94° 15′	6h 18m	94° 30′	6h 19m	94° 45	Γ
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.72648	.53270	9.72825	.53488	9.73002	.53705	9.73177	.53923	9.73352	.54140	60
1	.72651	.53274	.72828	.53491	.73005	.53709	.73180	.53927	.73355	.54144	59
2 3	.72654 $.72657$.53277 .53281	.72831 .72834	.53495 .53499	.73008 .73011	.53713 .53716	.73183 .73186	.53930 .53934	.73358 .73361	.54148 .54151	58 57
+ 1'	9.72660	.53285	9.72837	.53502	9.73014	.53720	9.73189	.53937	9.73364	,54155	56
5	.72663	.53288	.72840	.53506	.73016	.53724	.73192	.53941	.73367	.54159	55
$\frac{6}{7}$.72666 .72669	.53292 .53296	.72843 .72846	.53510 .53513	.73019 .73022	.53727	.731 95 °° .73198	.53945	.73370 .73373	.54162 .54166	54 53
+ 2'	9.72672	.53299	9.72849	.53517	9.73025	.53734	9.73201	.53952	9.73375	.54169	52
. 9	.72675	.53303	.72852	.53520	.73028	.53738	.73204	.53956	.73378	.54173	51
10	.72678	.53306	.72855	.53524	.73031	.53742	.73207	.53959	.73381	.54177	50
$\frac{11}{+3'}$	$\frac{.72681}{9.72684}$.53310	$\frac{.72858}{9.72861}$.53528	$\frac{.73034}{9.73037}$.53745	$\frac{.73209}{9.73212}$.53963 .53966	$\frac{.73384}{9.73387}$.54184	49
13	.72687	.53317	.72864	.53535	.73040	.53753	.73215	.53970	.73390	.54188	47
14	.72690	.53321	.72867	.53539	.73043	.53756	.73218	.53974	.73393	.54191	46
15	.72693	.53325	.72870	.53542	73046	.53760	73221	.53977	.73396	.54195	45
+ 4'	$9.72696 \\ .72699$.53328 .53332	$9.72873 \\ .72876$.53546 .53549	9.73049 .73052	.53763 .53767	9.73224 $.73227$.53981 .53985	9.73399 $.73402$.54198 .54202	44· 43
17 18	.72702	.53335	.72878	.53553	.73052	.53771	.73230	.53988	.73402	.54206	42
19	.72705	.53339	.72881	.53557	73057	.53774	.73233	.53992	.73407	.54209	41
+ 5'	9.72708	.53343	9.72884	.53560	9.73060	.53778	9.73236	.53995	9.73410	.54213	40
21 22	.72710 .72713	.53346 .53350	.72887 .72890	.53564 .53568	.73063 .73066	.53782 .53785	.73239 .73242	.53999 .54003	.73413 .73416	.54217 .54220	39 38
23	.72716	.53354	.72893	.53571	.73069	.53789	.73244	.54006	.73419	.54224	37
+ 6'	9.72719	.53357	9.72896	.53575	9.73072	.53792	9.73247	.54010	9.73422	.54227	36
25	.72722	.53361	.72899	.53579	.73075	.53796	.73250	.54014	.73425	.54231	35
26 27	.72725 .72728	.53364 .53368	.72902 .72905	.53582 .53586	.75078 .73081	.53800 .53803	.73253 .73256	.54017 .54021	.73428 .73431	.54235 .54238	34 33
+ 7'	$\frac{.72728}{9.72731}$.53372	9.72908	.53589	9.73084	.53807	$\frac{.73250}{9.73259}$.54024	9.73433	.54242	32
29	.72734	.53375	.72911	.53593	.73087	.53811	.73262	.54028	.73436	.54245	31
30	.72737	53379	.72914	.53597	.73090	.53814	.73265	.54032	.73439	.54249	30
$\frac{31}{+8'}$	$\frac{.72740}{9.72743}$.53383 .53386	$\frac{.72917}{9.72920}$.53600 .53604	$\frac{.73093}{9.73096}$.53818 .53821	$\frac{.73268}{9.73271}$.54035 .54039	$\frac{.73442}{9.73445}$.54253	29 28
33	.72746	.53390	.72923	.53608	.73098	.53825	.73274	.54043	.73448	.54260	27
34	.72749	.53394	.72926	.53611	.73101	.53829	.73277	.54046	.73451	.54264	26
35	.72752	.53397	.72928	-53615	.73104	.53832	.73280	.54050	.73454	.54267	25
+ 37	9.72755 .72758	.53401 .53404	$9.72931 \\ .72934$.53618 .53622	9.73107 $.73110$.53836 .53840	9.73282 .73285	.54053 .54057	9.73457 .73460	.54271 .54274	24 23
38	.72761	.53408	.72937	.53626	.73113	.53843	.73288	.54061	.73462	.54278	22
39	.72764	.53412	.72940	.53629	.73116	.53847	.73291	.54064	.73465	.54282	21
+ 10'	9.72767 .72770	.53415 .53419	9.72943 .72946	.53633 .53637	9.73119 $.73122$.53850	9.73294	.54068	9.73468	.54285	20
41 42	.72772	.53423	.72949	.53640	.73122	.53854 .53858	.73297 .73300	.54072 .54075	.73471 .73474	.54289 .54293	19 18
43	.72775	.53426	.72952	.53644	.73128	.53861	.73303	.54079	.73477	.54296	17
+ 11′	9.72778	.53430	9.72955	.53647	9.73131	.53865	9.73306	.54082	9.73480	.54300	16
45 46	.72781 .72784	.53433 .53437	.72958 .72961	.53651 .53655	.73134 .73136	.53869 .53872	.73309 .73311	.54086 .54090	.73483 .73486	.54303 .54307	15 14
47	.72787	.53441	.72964	.53658	.73139	.53876	.73314	.54093	.73489	.54311	13
+ 12'	9.72790	.53444	9.72967	.53662	9.73142	.53879	9.73317	.54097	9.73491	.54314	12
49	.72793	.53448	.72970	.53666	.73145	.53883	.73320	.54101	.73494	.54318	
50 51	.72796 .72799	.53452 .53455	.72972 .72975	.53669 .53673	.73148 .73151	.53887 .53890	.73323	.54104 .54108	.73497 .73500	.54322 .54325	10
+ 13'	9.72802	.53459	9.72978	.53676	9.73154	.53894	9.73329	.54111	9.73503	.54329	8
53	.72805	.53462	.72981	.53680	.73157	.53898	.73332	.54115	.73506	.54332	7.
54 55	.72808 .72811	.53466 .53470	.72984 .72987	.53684 .53687	.73160 .73163	.53901 .53905	.73335 .73338	.54119 .54122	.73509 .73512	.54336 .54340	6
+ 14'	9.72814	.53473	9.72990	.53691	9.73166	.53908	9.73341	.54126	9.73515	.54343	. 5
57	.72817	.53477	.72993	.53695	.73169	.53912	.73343	.54130	.73517	.54347	3
58	.72820	.53481	.72996	.53698	.73172	.53916	.73346	.54133	.73520	.54351	2
$\frac{59}{+$ 15 '	$\frac{.72823}{9.72825}$.53484 .53488	$\frac{.72999}{9.73002}$.53702	$\frac{.73174}{9.73177}$.53919	$\frac{.73349}{9.73352}$.54137 .54140	$\frac{.73523}{9.73526}$.54354 .54358	$\frac{1}{0}$
10									1		U
	17h	44m	17h.	43m	17h	42m	17h	41m	17h 4	Om.	

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	1				Haversh				ı		
	6h 20m	95° 0′	6h 21m	95° 15′	6h 22m	95° 30′	6h 23m	95° 45′	6h 24m	96° 0′	
S	Log. Hav.	Nat. Hav.	s								
0	9.73526	.54358	9.73699	.54575	9.73872	.54792	9.74044	.55009	9.74215	.55226	60
1	.73529	.54361	.73702	.54579	.73875	.54796	.74047	.55013	.74218	.55230	59
2	.73532	.54365	.73705	.54582	.73878	.54800	.74049	.55017	.74220	.55234	58
. 3	.73535	.54369	.73708	.54586	.73881	.54803	.74052	.55020	.74223	.55237	57
+ 1'	9.73538 $.73541$.54372 .54376	9.73711 .73714	.54590 .54593	9.73883 $.73886$.54807 .54810	9.74055 .74058	.55024 .55028	9.74226 $.74229$.55241 .55245	56 55
6	.73544	.54380	.73717	.54597	.73889	.54814	.74061	.55031	.74232	.55248	54
7	.73546	.54383	.73720	.54600	.73892	.54818	.74064	.55035	.74235	.55252	53
+ 2'	9.73549	.54387	9.73722	.54604	9.73895	.54821	9.74067	.55038	.9.74237	.55255	52
9	.73552	.54390	.73725	.54608	.73898	.54825	.74069	.55042	.74240	.55259	51
10	.73555	.54394	.73728	.54611	.73901	.54828	.74072	.55046	.74243	.55263	50
11	.73558	.54398	.73731	.54615	.73903	.54832	.74075	.55049	.74246	.55266	49
13	$9.73561 \\ .73564$.54401	9.73734	.54619 .54622	$9.73906 \\ .73909$.54836 .54839	9.74078 $.74081$.55053 .55056	$9.74249 \\ .74252$.55270 .55273	48 47
14	.73567	.54409	.73740	.54626	.73912	.54843	.74084	.55960	.74254	.55277	46
15	.73570	.54412	.73743	.54629	.73915	.54847	.74087	.55064	.74257	.55281	45
+ 4'	9.73572	.54416	9.73746	.54633	9.73918	.54850	9.74089	.55067	9.74260	.55284	44
17	.73575	.54419	.73748	.54637	.73921	.54854	.74092	.55071	.74263	.55288	43
18	.73578	.54423	.73751	.54640	.73924	.54857	.74095	.55075	.74266	.55292	42
19	.73581	.54427	.73754	.54644	.73926	.54861	.74098	.55078	.74269	.55295	41
+ 5'	9.73584	.54430	9.73757	.54647	9.73929	.54865 54868	9.74101 .74104	.55082	9.74272 $.74274$.55299	40 39
. 22	.73587 .73590	.54434	.73760 .73763	.54651 .54655	.73932 .73935	.54868 .54872	.74104	.55085 .55089	.74274	.55302 .55306	38
23	.73593	.54441	.73766	.54658	.73938	.54876	.74109	.55093	.74280	.55310	37
+ 6'	9.73596	.54445	9.73769	.54662	9.73941	.54879	9.74112	.55096	9.74283	.55313	36
25	.73598	.54448	.73771	.54666	.73944	.54883	.74115	.55100	.74286	.55317	35
26	.73601	.54452	.73774	.54669	.73946	.54886	.74118	.55103	.74289	.55320	34
27	.73604	.54456	.73777	.54673	.73949	.54890	.74121	.55107	.74291	.55324	33
+ 7'	9.73607	.54459 .54463	9.73780 .73783	.54676 .54680	9.73952 $.73955$.54894 .54897	$9.74124 \\ .74126$.55111	$9.74294 \\ .74297$.55328 .55331	32 31
30	.73610 .73613	.54466	.73786	.54684	.73958	.54901	.74120	.55118	.74300	.55335	30
31	.73616	.54470	.73789	.54687	.73961	.54904	.74132	.55122	.74303	.55339	29
+ 8'	9.73619	.54474	9.73792	.54691	9.73964	.54908	9.74135	.55125	9.74306	.55342	28
33	.73622	.54477	.73794	.54695	.73967	.54912	.74138	.55129	.74308	.55346	27
34	.73624	.54481	.73797	.54698	.73969	.54915	.74141	.55132	.74311	.55349	26
35	.73627	.54485	.73800	.54702	.73972	.54919	.74144	.55136	.74314	.55353	25
+ 37 9'	9.73630 .73633	.54488 .54492	$9.73803 \\ .73806$.54705 .54709	$9.73975 \\ .73978$.54923 .54926	$9.74146 \\ .74149$.55140 .55143	9.74317 $.74320$.55357 .55360	24 23
38	.73636	.54495	.73809	.54713	.73981	.54930	.74152	.55147	.74323	.55364	22
39	.73639	.54499	.73812	.54716	.73984	.54933	.74155	.55150	.74325	.55367	21
+ 10′	9.73642	.54503	9.73815	.54720	9.73987	.54937	9.74158	.55154	9.74328	.55371	20
41	.73645	.54506	.73817	.54724	.73989	.54941	.74161	.55158	.74331	.55375	19
42	.73648	.54510	.73820	.54727	.73992	.54944	.74163	.55161	.74334	.55378	18
$\frac{43}{+11'}$.73650	.54514	.73823	.54731	.73995	.54948	.74166	.55165	.74337	.55382	17
+ 11 ′	9.73653 .73656	.54517 .54521	$9.73826 \\ .73829$.54734 .54738	9.73998 .74001	.54952 .54955	9.74169 $.74172$.55169 .55172	$9.74340 \\ .74342$.55386 .55389	16 15
46	.73659	.54524	.73832	.54742	.74001	.54959	.74175	.55176	.74342	.55393	14
47	.73662	.54528	.73835	.54745	.74007	.54963	.74178	.55179	.74348	.55396	13
+ 12'	9.73665	.54532	9.73838	.54749	9.74009	.54966	9.74181	.55183	9.74351	.55400	12
49	.73668	.54535	.73840	.54752	.74012	.54970	.74183	.55187	.74354	.55404	11
50	.73671	.54539	.73843	.54756	.74015	.54973	.74186	.55190	.74357	.55407	10
51	.73674	.54542	.73846	.54760	.74018	.54977	.74189	.55194	.74359	.55411	9
+ 13'	9.73676	.54546 .54550	9.73849 $.73852$.54763 .54767	$9.74021 \\ .74024$.54980 .54984	$9.74192 \\ .74195$.55197	9.74362	.55414	8
54	.73682	.54553	.73855	.54771	.74024	.54984	.74195	.55201 .55205	.74365 .74368	.55418 .55422	6
55	.73685	.54557	.73858	.54774	.74029	.54991	.74200	.55208	.74371	.55425	5
+ 14'	9.73688	.54561	9.73860	.54778	9.74032	.54995	9.74203	.55212	9.74374	.55429	4
57	.73691	.54564	.73863	.54781	.74035	.54999	.74206	.55216	.74376	.55433	3
58	.73694	.54568	.73866`	.54785	.74038	.55002	.74209	.55219	.74379	.55436	2
59	.73697	.54571	.73869	.54789	.74041	.55006	.74212	.55223	.74382	.55440	1
+ 15'	9.73699	.54575	9.73872	.54792	9.74044	.55009	9.74215	.55226	9.74385	.55443	0
	17h	39m	17h	38m	17h	37m	17h	36m	17h	35m	
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TABLE 45.

		96° 15′	0" 20"	96° 30′	6h 27m	96 45	6h 28m	97 0	6h 29m	97° 15′	
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.74385	.55443	9.74554	.55660	9.74723	.55877	9.74891	.56993	9.75059	.56310	60
1	.74388	.55447	.74557	.55664	.74726	.55880	.74894	.56097	.75061	.56314	59
2 3	.74391 .74393	.55451 .55454	.74560 .74563	.55667 .55671	.74729 .74732	.55884 .55888	.74897 .74900	.56101 .56104	.75064 .75067	.56317 .56321	58 57
+ 1'	9.74396	.55458	9.74566	.55675	9.74734	.55891	9.74902	.56108	9.75070	.56324	56
5	.74399	,55461	.74569	.55678	.74737	.55895	.74905	.56112	.75072	.56328	55
6 7	.74402	.55465 .55469	.74571	.55682 .55685	.74740	.55899 .55902	.74908	.56115 .56119	.75075	.56332 .56335	54
+ 2'	$\frac{.74405}{9.74408}$.55472	$\frac{.74574}{9.74577}$.55689	9.74746	.55906	$\frac{.74911}{9.74914}$.56122	.75078 9.75081	.56339	$\frac{53}{52}$
9	.74410	.55476	.74580	.55693	.74748	.55909	.74916	.56126	.75084	.56342	51
10	.74413	.55479	.74583	.55696	.74751	.55913	.74919	.56130	.75086	.56346	50
$\frac{11}{+3'}$.74416 9.74419	.55483	$\frac{.74585}{9.74588}$.55700	.74754 9.74757	.55917 .55920	$\frac{.74922}{9.74925}$.56133 .56137	$\frac{.75089}{9.75092}$.56350 .56353	49
13	.74422	.55490	.74591	.55707	.74760	.55924	.74928	.56140	.75092	.56357	47
14	.74425	.55494	.74594	.55711	.74762	.55927	.74930	.56144	.75097	.56360	46
15	.74427	.55498	.74597	.55714	.74765	.55931	.74933	.56147	.75100	.56364	45
+ 4'	9.74430 .74433	.55501 .55505	$9.74600 \\ .74602$.55718 .55722	9.74768 .7 4771	.55935 .55938	9.74936 .74939	.56151 .56155	9.75103 $.75106$.56368 .56371	44 43
18	.74436	.55508	.74605	.55725	.74774	.55942	.74941	.56158	.75100	.56375	42
19	.74439	.55512	.74603	.55729	.74776	.55945	.74944	.56162	.75111	.56378	41
+ 5'	9.74442	.55516	9.74611	.55732	9.74779	.55949	9.74947	.56166	9.75114	.56382	40
21 22	.74444 .74447	.55519 .55523	.74614 $.74616$.55736 .55740	.74782 .74785	.55953 .55956	.74950 $.74953$.56169 .56173	.75117 .75120	.56386 .56389	39
23	.74450	.55526	.74619	.55743	.74788	.55960	.74955	.56176	.75122	.56393	37
+ 6'	9.74453	.55530	9.74622	.55747	9.74791	.55964	9.74958	.56180	9.75125	.56397	36
25 26	.74456 .74458	.55534 .55537	.74625	.55750 .55754	.74793 .74796	.55967	.74961	.56184 .56187	.75128 .75131	.56400 .56404	35
27	.74461	.55541	.74628 .74630	.55758	.74799	.55974	.74964 .74967	.56191	.75131	.56407	33
+ 7/	9.74464	.55545	9.74633	.55761	9.74802	.55978	9.74969	.56195	9.75136	.56411	32
29	.74467	.55548	.74636	.55765	.74805	.55982	.74972	.56198	.75139	.56415	31
30 31	.74470 .74473	.55552 .55555	.74639 .74642	.55769 .55772	.74807 .74810	.55985 .55989	.74975 .74978	.56202 .56205	.75142 .75145	.56418 .56422	30 29
+ 8'	9.74475	.55559	9.74645	.55776	$\frac{.74810}{9.74813}$.55992	$\frac{.74976}{9.74981}$.56209	9.75147	.56425	28
33	.74478	.55563	.74647	.55779	.74816	.55996	.74983	.56213	.75150	.56429	27
34	.74481	.55566	.74650	.55783 .55787	.74819	.56000	.74986	.56216	.75153	.56433 .56436	26
$\frac{35}{+ 9'}$.74484 9.74487	.55570	$\frac{.74653}{9.74656}$.55790	$\frac{.74821}{9.74824}$.56003 .56007	$\frac{.74989}{9.74992}$.56220	$\frac{.75156}{9.75159}$.56440	25
37	.74490	.55577	.74659	.55794	.74827	.56010	.74994	.56227	.75161	.56443	23
38	.74492	.55581	.74661	.55797	.74830	.56014	.74997	.56231	.75164	.56447	22
39 + 10 ′	$\frac{.74495}{9.74498}$.55584	$\frac{.74664}{9.74667}$.55801 .55805	$\frac{.74833}{9.74835}$.56018 .56021	$\frac{.75000}{9.75003}$.56234 .56238	$\frac{.75167}{9.75170}$.56451	$\frac{21}{20}$
41	.74501	.55592	.74670	.55808	.74838	.56025	.75006	.56241	.75172	.56458	19
42	.74504	.55595	.74673	.55812	.74841	.56029	.75008	.56245	.75175	.56461	18
43	.74506	.55599	.74675	.55815	.74844	.56032	.75011	.56249	.75178	.56465	17
+ 11' 45	9.74509 $.74512$.55602 .55606	9.74678 .74681	.55819 .55823	9.74846 $.74849$.56036 .56039	9.75014 .75017	.56252 .56256	9.75181 .75183	.56469 .56472	16 15
46	.74515	.55610	.74684	.55826	.74852	.56043	.75020	.56259	.75186	.56476	14
47	.74518	.55613	.74687	.55830	.74855	.56047	.75022	.56263	.75189	.56479	13
+12/	9.74521	.55617 .55620	9.74690	.55834 55837	9.74858	.56050 56054	9.75025	.56267 56270	9.75192	.56483 56487	12
49 50	.74523 .74526	.55620 .55624	.74692 .74695	.55837 .55841	.74860	.56054	.75028	.56270	.75195	.56487	11 10
51	.74529	.55628	.74698	.55844	.74866	.56061	.75033	.56277	.75200	.56494	9
+ 13'	9.74532	.55631	9.74701	.55848	9.74869	.56065	9.75036	.56281	9.75203	.56497	8
53 54	.74535 .74538	.55635 .55638	.74704 .74706	.55852 .55855	.74872 .74874	.56068 .56072	.75039 .75042	.56285 .56288	.75206 .75208	.56501 .56505	6
55	.74540	.55642	.74709	.55859	.74877	.56075	.75042	.56292	.75211	.56508	5
+ 14'	9.74543	.55646	9.74712	.55862	9.74880	.56079	9.75047	.56296	9.75214	.56512	4
57 58	.74546 .74549	.55649 .55653	.74715 .74718	.55866 .55870	.74883 .74886	.56083 .56086	.75050 .75053	.56299 .56303	.75217 .75220	.56516 .56519	3 2
59	.74549	.55657	.74718	.55873	.74888	.56090	.75056	.56306	.75222	.56523	1
+ 15'	9.74554	.55660	9.74723	.55877	9.74891	.56093	9.75059	.56310	9.75225	.56526	0
	17h	3/m	177	33m.	171	32m	17h	21m	17h	30m	
	1/10	04	1/"	99····	1710	02	1716	01	17"	00	<u> </u>

ΓABLE 45	
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					Haversi	nes.					
	6h 30m	97° 30′	6h 31m	97° 45′	6h 32m	98° 0′	6h 33m	98° 15′	6h 34m	98° 30′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat, Hav.	Log. Hav.	Nat. Hav.	s
0	9.75225	.56526	9.75391	.56743	9.75556	.56959	9.75720	.57175	9.75884	.57390	60
1 2	.75228 .75231	.56530 .56534	.75394 .75396	.56746 .56750	.75559 .75561	.56962 .56966	.75723 .75726	.57178 .57182	.75887 .75889	.57394 .57398	59 58
3	.75233	.56537	.75399	.56753	.75564	.56969	.75729	.57185	.75892	.57401	57
+ 1'	9.75236	.56541	9.75402	.56757	9.75567	.56973	9.75731	.57189	9.75895	.57405	56
5 6	.75239 .75242	.56544 .56548	.75405 .75407	.56761 .56764	.75570 .75572	.56977 .56980	.75734 .75737	.57193 .57196	.75898 .75900	.57408 .57412	5 5 54
7	.75244	.56552	.75410	.56768	.75575	-56984	.75739	.57200	.75903	.57416	53
+ 2'	9.75247 $.75250$.56555 .56559	9.75413 $.75416$.56771 .56775	9.75578 $.75581$.56987 .56991	9.75742 .75745	.57203 .57207	9.75906	.57419 .57423	52 51
10	.75253	.56562	.75418	.56779	.75583	.56994	.75748	.57211	.75911	.57426	50
11	.75256	.56566	.75421	.56782	.75586	.56998	.75750	.57214	.75914	.57430	49
+ 3'	$9.75258 \\ .75261$.56570 .56573	9.75424	.56786 .56789	9.75589	.57002 .57005	9.75753 .75756	.57218 .57221	9.75917 $.75919$.57434	48 47
14	.75264	.56577	.75429	.56793	.75594	.57009	.75759	.57225	.75922	.57441	46
15	.75267	.56580	.75432	.56797	.75597	.57012	.75761	.57229	.75925	.57444	45
+ 4'	9.75269 $.75272$.56584 .56588	9.75435 $.75438$.56800 .56804	$9.75600 \\ .75603$.57016 .57020	$9.75764 \\ .75767$.57232	9.75927 $.75930$.57448 .57452	44 43
18	.75275	.56591	.75440	.56807	.75605	.57023	.75770	.57239	.75933	.57455	42
$\frac{19}{+5'}$.75278	.56595	.75443	.56811	$\frac{.75608}{9.75611}$.57027 .57031	$\frac{.75772}{9.75775}$.57243	$\frac{.75936}{9.75938}$.57459 .57462	$\frac{41}{40}$
+ 5'	$9.75280 \\ .75283$.56598 .56602	9.75446 $.75449$.56815 .56818	.75614	.57034	.75778	.57250	.75941	.57466	39
22	.75286	.56696	.75452	.56822	.75616	.57038	.75780	.57254	.75944	.57470	38
+ 6'	$\frac{.75289}{9.75291}$.56609 .56613	$\frac{.75454}{9.75457}$.56825	$\frac{.75619}{9.75622}$.57041	$\frac{.75783}{9.75786}$.57257 .57261	$\frac{.75947}{9.75949}$.57473	37 36
25	.75294	.56616	.75460	.56833	.75625	.57049	.75789	.57265	.75952	.57480	36
26	.75297	.56620	.75463	.56836	.75627	.57052	.75791	.57268	.75955	.57484	34
+ 7'	$\frac{.75300}{9.75303}$.56624 .56627	$\frac{.75465}{9.75468}$.56840 .56843	$\frac{.75630}{9.75633}$.57056 .57059	$\frac{.75794}{9.75797}$.57272	$\frac{.75957}{9.75960}$.57488 .57491	33 32
29	.75305	.56631	.75471	.56847	.75636	.57063	.75800	.57279	.75963	.57495	31
30 31	.75308	.56634	.75474	.56851 .56854	.75638	.57067 .57070	.75802	.57283 .57286	.75966 $.75968$.57498 .57502	30 29
$\frac{31}{+8'}$	$\frac{.75311}{9.75314}$.56638 .56642	$\frac{.75476}{9.75479}$.56858	$\frac{.75641}{9.75644}$.57074	$\frac{.75805}{9.75808}$.57290	$\frac{.75908}{9.75971}$.57506	28
33	.75316	.56645	.75482	.56861	.75646	.57077	.75810	.57293	.75974	.57509	27
34 35	.75319 .75322	.56649 .56652	.75485 .75487	.56865 .56869	.75649 .75652	.57081 .57085	.75813 .75816	.57297 .57301	.75976 $.75979$.57513 .57516	26 25
+ 9'	9.75325	.56656	9.75490	.56872	9.75655	.57088	$\frac{.75819}{9.75819}$.57304	9.75982	.57520	24
37	.75327	.56660	.75493	.56876	.75657	.57092	.75821	.57308	.75985	.57524	23
38 39	.75330 .75333	.56663 .56667	.75496 .75498	.56879 .56883	.75660 .75663	.57095 .57099	.75824 .75827	.57311 .57315	.75987 .75990	.57527 .57531	22 21
+ 10'	9.75336	.56670	9.75501	.56887	9.75666	.57103	9.75830	.57318	9.75993	.57534	20
41	.75338	.56674	.75504	.56890	.75668	.57106	.75832	.57322	.75995	.57538	19
42 43	.75341 .75344	.56678 .56681	.75507 .75509	.56894 .56897	.75671 $.75674$.57110 .57114	.75835 .75838	.57326 .57329	.75998 .76001	.57541 .57545	18 17
+ 11'	9.75347	.56685	9.75512	.56901	9.75677	.57117	9.75840	.57333	9.76004	.57549	16
45 46	.75350 .75352	.56689 .56692	.75515	.56905 .56908	.75679 .75682	.57121	.75843	.57337 .57340	.76006 .76009	.57552 .57556	15 14
47	.75352	.56696	.75518 .75520	.56912	.75685	.57124 .57128	.75846 .75849	.57344	.76012	.57559	13
+ 12'	9.75358	.56699	9.75523	.56915	9.75688	.57131	9.75851	.57347	9.76014	.57563	12
49 50	.75361 .75363	.56703 .56707	.75526 $.75529$.56919 .56923	.75690 .75693	.57135 .57139	.75854 .75857	.57351 .57355	.76017 .76020	.57567 .57570	11 10
51	.75366	.56710	.75531	.56926	.75696	.57142	.75859	.57358	.76023	.57574	9
+ 13'	9.75369	.56714	9.75534	.56930	9.75698	.57146	9.75862	.57362	9.76025	.57577	8
53 54	.75372	.56717 .56721	.75537 .75540	.56933 .56937	.75701 .75704	.57149 .57153	.75865 .75868	.57365 .57369	.76028 .76031	.57581 .57585	6
55	.75377	.56725	.75542	.56941	.75707	.57157	.75870	.57373	76033	.57588	5
+ 14'	9.75380	.56728	9.75545	.56944 .56948	9.75709	.57160	9.75873	.57376	9.76036	.57592	4
57 58	.75383 .75385	.56732 .56735	.75548 .75550	.56951	.75712 .75715	.57164 .57167	.75876 .75879	.57380 .57383	.76039 .76041	.57595 .57599	3
59	.75388	.56739	.75553	.56955	.75718	.57171	75881	57387	.76044	.57603	1
+ 15′	9.75391	.56743	9.75556	.56959	9.75720	.57175	9.75884	.57390	9.76047	.57606	0
	17h	29m	17h	28m	17h	27m	17h	26m	17h	25^m	

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TABLE 45.

	6h 35m	98° 45′	6h 36m	99° 0′	6h 37m	99° 15′	6h 38m	99° 30′	6h 39m	99° 45′	_
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.		s
0	9.76047	.57606	9.76209	.57822	9.76371	.58037	9.76531	.58252	9.76691	.58467	60
1	.76050	.57610	.76212	.57825	.76373	.58041	.76534	.58256	.76694	.58471	59
2	.76052	.57613	.76215	.57829	.76376	.58044	.76537	.58260	.76697	.58475	58
3	.76055	.57617	.76217	.57833	.76379	.58048	.76539	.58263	.76699	.58478	57
+ 1'	9.76058	.57621	9.76220	.57836	9.76381	.58051	9.76542	.58267	9.76702	.58482	56
5	.76060	.57624	.76223	.57840	.76384	.58055	.76545	.58270	.76705	.58485	55
6	.76063	.57628	.76225	.57843	.76387	.58059	.76547	.58274	.76707	.58489	54
7	.76066	.57631	.76228	.57847	.76389	.58062	.76550	.58277	.76710	.58493	53
+ 2'	9.76069	.57635	9.76231	.57850	9.76392	.58066	9.76553	.58281	9.76713	.58496	52
9 , 10	.76071 .76074	.57639 .57642	.76233 .76236	.57854 .57858	.76395	.58069 .58073	.76555	.58285	.76715	.58500	51
11	.76074	.57646	.76239	.57861	.76397 .76400	.58077	.76558 .76561	.58288 .58292	.76718 .76721	.58503 .58507	50 49
$\frac{11}{+3'}$	9.76079	.57649	9.76241	.57865	9.76403	.58080	$\frac{.76561}{9.76563}$.58295	$\frac{.76721}{9.76723}$.58510	48
13	.76082	.57653	.76244	.57868	.76405	.58084	.76566	.58299	.76726	.58514	47
14	.76085	.57656	.76247	.57872	.76408	.58087	.76569	.58303	.76729	.58518	46
15	.76088	.57660	.76250	.57876	.76411	.58091	.76571	.58306	.76731	.58521	45
+ 4'	9.76090	.57664	9.76252	.57879	9.76414	.58095	9.76574	.58310	9.76734	.58525	44
17	.76093	.57667	.76255	.57883	.76416	.58098	.76577	.58313	.76737	.58528	43
18	.76096	.57671	.76258	.57886	.76419	.58102	.76579	.58317	.76739	.58532	42
19	.76098	.57675	76260	.57890	.76422	.58105	.76582	.58321	.76742	.58536	41
+ 5′	9.76101	.57678	9.76263	.57894	9.76424	.58109	9.76585	.58324	9.76745	.58539	40
21	.76104	.57682	.76266	.57897	76427	.58112	.76587	.58328	.76747	.58543	39
22	.76106	.57685	.76268	.57901	.76430	.58116	.76590	.58331	.76750	.58546	38
23	.76109	.57689	.76271	.57904	.76432	.58120	.76593	.58335	.76753	.58550	37
+ 6'	9.76112 .76115	.57692 .57696	9.76274	.57908	9.76435	.58123	9.76595	.58338	9.76755	.58553	36
25 26	.76113	.57700	.76276 .76279	.57911 .57915	.76438 .76440	.58127 .58130	.76598 .76601	.58342 .58346	.76758	.58557 .58561	35 34
27	.76120	.57703	.76282	.57919	.76443	.58134	.76603	.58349	.76761 .76763	.58564	33
+ 7'	9.76123	.57707	9.76285	.57922	9.76446	.58138	9.76606	.58353	9.76766	.58568	32
29	.76125	.57710	.76287	.57926	.76448	.58141	.76609	.58356	.76769	.58571	31
30	.76128	.57714	.76290	.57929	.76451	.58145	.76611	.58360	.76771	.58575	30
31	.76131	.57718	.76293	.57933	.76454	.58148	.76614	.58364	.76774	.58579	29
+ 8'	9.76134	.57721	9.76296	.57937	9.76456	.58152	9.76617	.58367	9.76777	.58582	28
33	.76136	.57725	.76298	.57940	.76459	.58156	.76619	.58371	.76779	.58586	27
34	.76139	.57728	.76301	.57944	.76462	.58159	.76622	.58374	.76782	.58589	26
35	.76142	.57732	.76303	.57947	.76464	.58163	.76625	.58378	.76784	.58593	25
+ 9'	9.76144	.57736	9.76306	.57951	9.76467	.58166	9.76627	.58381	9.76787	.58596	24
38	.76147 .76150	.57739	.76309 .76311	.57955 .57958	.76470	.58170 .58173	.76630	.58385	.76790	.58600	23 22
39	.76152	.57746	.76311	.57962	.76473 .76475	.58177	.76633 .76635	.58389 .58392	.76792 .76795	.58604 .58607	21
+ 10'	9.76155	.57750	9.76317	.57965	9.76478	.58181	9.76638	.58396	9.76798	.58611	20
41	.76158	.57753	.76320	.57969	.76481	.58184	.76641	.58399	.76800	.58614	19
42	.76161	.57757	.76322	.57973	.76483	.58188	.76643	.58403	.76803	.58618	18
43	.76163	.57761	.76325	.57976	.76486	.58191	.76646	.58407	.76806	.58622	17
+ 11′	9.76166	.57764	9.76328	.57980	9.76489	.58195	9.76649	.58410	9.76808	.58625	16
45	.76169	.57768	.76330	.57983	.76491	.58199	.76651	.58414	.76811	.58629	15
46	.76171	.57771	.76333	.57987	.76494	.58202	.76654	.58417	.76814	.58632	14
47	.76174	.57775	.76336	.57990	.76497	.58206	.76657	.58421	.76816	.58636	13
+ 12'	9.76177	.57779	9.76338	.57994	9.76499		9.76659	.58424	9.76819	.58639	12
49 50	.76179	.57782	.76341	.57998	.76502	.58213	.76662	.58428	.76822	.58643	11
50 51	.76182 .76185	.57786 .57789	.76344 .76346	.58001 .58005	.76505 .76507	.58217 .58220	.76665 .76667	.58432 .58435	76824	.58647 .58650	10
+ 13'	9.76188	.57793	9.76349	.58008	9.76510	.58224	9.76670	.58439	.76827 9.76830	.58654	8
53	.76190	.57797	.76352	.58012	.76513	.58227	.76673	.58442	.76832	.58657	7
54	.76193	.57800	.76354	.58016	.76515	.58231	.76675	.58446	.76835	.58661	6
55	.76196	.57804	.76357	.58019	.76518	.58234	.76678	.58450	.76838	.58665	5
+ 14'	9.76198	.57807	9.76360	.58023	9.76521	.58238	9.76681	.58453	9.76840	.58668	4
57	.76201	.57811	.76363	.58026	.76523	.58242	.76683	.58457	.76843	.58671	3
58	.76204	.57815	.76365	.58030	.76526	.58245	.76686	.58460	.76845	.58675	2
59	.76206	.57818	.76368	.58034	.76529	.58249	.76689	.58464	.76848	.58679	
+ 15'	9.76209	.57822	9.76371	.58037	9.76531	.58252	9.76691	.58467	9.76851	.58682	0
	17h	9 4m	17h	0 0 m	17h	00m	17h	01m	17h ;	20m	
	1716	04""	1711	23"	1710	62110	1711	21111	1716	50111	

	ch 10m	100° 0′	Ch /1m	100° 15′	ch tom	100° 30′	Ch 10m	100° 45′	6h 1.1m	101° 0′	
s	Log. Hav.			Nat. Hav.	Log. Hav.		Log. Hav.			Nat. Hav.	s
								.59326		.59540	60
0	9.76851 $.76853$.58682 .58686	9.77009 .77012	.58897 .58901	9.77167 .77170	.59112 .59115	9.77325 .77327	.59330	9.77481 .77484	.59544	59
2	.76856	.58690	.77015	.58904	.77173	.59119	.77330	.59333	.77486	.59548	58
3	.76859	.58693	.77017	.58908	.77175	.59122	.77333	.59337	.77489	59551	57
+ 1'	9.76861	.58697	9.77020	.58911	9.77178	.59126	9.77335	.59340	9.77492	.59555	56
5	.76864	.58700 .58704	.77023 .77025	.58915 .58919	.77181 .77183	.59130 .59133	.77338 .77340	.59344 .59348	.77494 .77497	.59558 .59562	55 54
6 7	.76867 .76869	.58707	.77028	.58922	.77186	.59137	.77343	.59351	.77499	.59565	53
+ 2'	$\frac{.76872}{9.76872}$.58711	9.77031	.58926	9.77188	.59140	9.77346	.59355	9.77502	.59569	52
9	.76875	.58714	.77033	.58929	.77191	.59144	.77348	.59358	.77505	.59573	51
10	.76877	.58718	.77036	.58933	.77194	.59148	.77351	.59362	.77507	.59576	50
11	.76880	.58722	.77038	-58937	$\frac{.77196}{0.77100}$.59151	$\frac{.77353}{9.77356}$.59365 .59369	$\frac{.77510}{9.77512}$.59580 .59583	49 48
+ 3'	9.76883 $.76885$.58729	9.77041 $.77044$.58940 .58944	9.77199 $.77202$.59155 .59158	.77359	.59373	.77515	.59587	40 47
14	.76888	.58733	.77046	.58947	.77204	.59162	.77361	.59376	.77518	.59590	46
15	.76891	.58736	.77049	.58951	.77207	.59165	.77364	.59380	.77520	.59594	45
+ 4'	9.76893	.58740	9.77052	.58954	9.77209	.59169	9.77366	.59383	9.77523	.59598	44
17	.76896	.58743	.77054	.58858	.77212	.59173	.77369	.59387	.77525	.59601	43
18 19	.76898 $.76901$.58747 .58750	.77057 .77060	.58962 .58965	.77215 .77217	.59176 .59180	.77372 .77374	.59391 .59394	.77528 .77531	.59605 .59608	42 41
$\frac{19}{+5'}$	$\frac{.76901}{9.76904}$.58754	$\frac{.77060}{9.77062}$.58969	$\frac{.77217}{9.77220}$.59183	9.77377	.59398	9.77533	.59612	40
21	.76906	.58758	.77065	.58972	.77223	.59187	.77380	.59401	.77536	.59615	39
22	.76909	.58761	.77067	.58976	.77225	.59190	.77382	.59405	.77538	.59619	38
23	.76912	.58765	.77070	.58979	.77228	.59194	.77385	.59408	.77541	.59623	37
+ 6'	$9.76914 \\ .76917$.58768	9.77073 .77075	.58983	9.77230	.59198 .59201	9.77387	.59412 .59416	9.77544	.59626 .59630	36
25 26	.76917	.58772 .58776	.77075	.58987 .58990	.77233 .77236		.77390 1 :77393	.59419	.77546 $.77549$.59633	35 34
27	.76922	.58779	.77081	.58994	.77238	.59208	.77395	.59423	.77551	.59637	33
+ 7/	9.76925	.58783	9.77083	.58997	9.77241	.59212	9.77398	.59426	9.77554	.59640	32
29	.76928	.58786	.77086	.59001	.77243	.59215	.77400	.59430	.77557	.59644	31
30	.76930	.58790	.77089	.59005	.77246	.59219	.77403	.59433	.77559	.59648	30
$\frac{31}{+8'}$	$\frac{.76933}{9.76936}$.58793	$\frac{.77091}{9.77094}$	$\frac{.59008}{.59012}$	$\frac{.77249}{9.77251}$.59223 .59226	$\frac{.77406}{9.77408}$.59437 .59440	$\frac{.77562}{9.77564}$.59651 .59655	29
33	.76938	.58891	.77094	.59012	.77254	.59230	.77411	.59444	.77567	.59658	28
34	.76941	.58804	.77099	.59019	.77257	.59233	.77413	.59448	.77570	.59662	26
35	.76943	.58808	.77102	.59022	.77259	.59237	.77416	.59451	.77572	59665	25
+ 9'	9.76946	.58811	9.77104	.59026	9.77262	.59240	9.77419	.59455	9.77575	.59669	24
37	.76949 .76951	.58815 58818	.77107	.59030	.77264	.59244	.77421	.59458 59462	.77577	.59672	23
38 39	.76954	.58818 .58822	.77110 .77112	.59033 .59037	.77267 .77270	.59248 .59251	.77424 .77427	.59462 .59465	.77580 .77583	.59676 .59680	22
+ 10'	9.76957	.58826	9.77115	.59040	9.77272	.59255	9.77429	.59469	9.77585	.59683	20
41	.76959	.58829	.77117	.59044	.77275	.59258	.77432	.59473	.77588	.59687	19
42	.76962	.58833	.77120	.59047	.77278	.59262	.77434	.59476	.77590	.59690	18
43	.76965	-58836	.77123	.59051	.77280	.59265	.77437	.59480	.77593	.59694	17
+ 11' 45	9.76967 .76970	.58840 .58843	9.77125 .77128	.59055 .59058	9.77283 .77285	.59269 .59273	9.77440 .77442	.59483 .59487	9.77596 .77598	.59697 .59701	16 15
46	.76972	.58847	.77131	.59062	.77288	.59276	.77445	.59490	.77601	.59705	14
47	.76975	.58851	.77133	.59065	.77291	.59280	.77447	.59494	.77603	.59708	13
+ 12'	9.76978	.58854	9.77136	.59069	9.77293	.59283	9.77450	.59498	9.77606	.59712	12
49 50	.76980	.58858	.77139	.59072	.77296	.59287	.77453	.59501	.77609	.59715	11
50 51	.76983 .76986	.58861 .58865	.77141 .77144	.59076 .59080	.77298 .77301	.59290 .59294	.77455 .77458	.59505 .59508	.77611 .77614	.59719 .59722	10
+ 13'	9.76988	.58869	9.77146	.59083	$\frac{.77301}{9.77304}$.59298	9.77460	.59512	9.77616	.59726	8
53	.76991	.58872	.77149	.59087	.77306	.59301	.77463	.59515	.77619	.59730	7
54	.76994	.58876	.77152	.59090	.77309	.59305	.77466	.59519	.77622	.59733	6
55	.76996	.58879	.77154	.59094	.77312	.59308	.77468	.59523	.77624	.59737	5
+ 14'	9.76999	.58883 .58886	9.77157	.59097	9.77314	.59312	9.77471	.59526	9.77627	.59740	4
57 58	.77002 .77004	.58890	.77160 .77162	.59101 .59105	.77317 .77319	.59315 .59319	.77473 .77476	.59530 .59533	.77629 .77632	.59744 .59747	3 2
59	.77007	.58894	.77165	.59108	.77322	.59323	.77479	.59537	.77634	.59751	1
+ 15'	9.77009	.58897	9.77167	.59112	9.77325	.59326	9.77481	.59540	9.77637	.59755	0
	17h	19m	17h	18m	17h	17m	17h	16m	17h	15m	
					11.		17.		11.0		

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TABLE 45.

	03.15	4040 454	ah tam	040 00/	Ch Imm	1010 47/	ch tom	1000 0/	ch 10m	1000 15/	
	6h 45m	101° 15′	6n 46m	101° 30′	6n 47m	101° 45′	6n 48m	102° 0′	6n 49m	102° 15′	. 1
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.		Log. Hav.	Nat. Hav.	Log. Hav.		s
0	9.77637	.59755	9.77792	.59968	9.77947	.60182	9.78101	.60396	9.78254	.60609	60
1	.77640	.59758 .59762	.77795 .77797	.59972 .59976	.77949 .77952	.60185 .60189	.78103 .78106	.60399	.78256 .78259	.60612 .60616	59 58
2 3	.77642 .77645	.59765	.77800	.59979	.77954	.60193	.78108	.60406	.78261	.60620	57
+ 1'	9.77647	.59769	9.77803	.59983	9.77957	.60196	9.78111	.60410	9.78264	.60623	56
. 5	.77650	.59772	.77805	.59986	.77960	.60200	.78113	.60414	.78266	.60627	55
6	.77653	.59776	.77808	.59990	.77962	.60203	.78116	.60417	.78269	.60630	54
$\frac{\gamma}{+2'}$	$\frac{.77655}{9.77658}$.59779	$\frac{.77810}{9.77813}$.59993	$\frac{.77965}{9.77967}$.60207	$\frac{.78118}{9.78121}$.60420	$\frac{.78271}{9.78274}$.60634	$\frac{53}{52}$
$+ \frac{2}{9}$.77660	.59787	.77815	.60000	.77970	.60214	.78124	.60428	.78277	.60641	51
10	.77663	.59790	.77818	.60004	.77972	.60218	.78126	.60431	.78279	.60644	50
11	.77666	.59794	77821	.60008	.77975	.60221	.78129	.60435	.78282	.60648	49
+ 3'	9.77668	.59797	9.77823	.60011	9.77978	.60225	9.78131	.60438 .60442	9.78284 $.78287$.60652 .60655	48
13 14	.77671 .77673	.59801 .59804	.77826 .77828	.60015 .60018	.77980 .77983	.60228 .60232	.78134 .78136	.60445	.78289	.60659	47
15	.77676	.59808	.77831	.60022	.77985	.60235	.78139	.60449	.78292	.60662	45
+ 4'	9.77679	.59812	9.77834	.60025	9.77988	.60239	9.78141	.60452	9.78294	.60666	44
17	.77681	.59815	.77836	.60029	.77990	.60243	.78144	.60456	.78297	.60669	43
18 19	.77684 .77686	.59819 .59822	.77839 .77841	.60033 .60036	.77993 .77996	.60246 .60250	.78147 .78149	.60460	.78299 .78302	.60676	42 41
$\frac{19}{+5'}$	9.77689	.59826	$\frac{.77841}{9.77844}$.60040	$\frac{.77998}{9.77998}$.60253	$\frac{.78143}{9.78152}$.60437	$\frac{.78302}{9.78305}$.60680	40
21	.77691	.59829	.77846	.60043	.78001	.60257	.78154	.60470	.78307	.60684	39
22	.77694	.59833	.77849	.60047	.78003	.60260	.78157	.60474	.78310	.60687	38
23	.77697	.59837	.77852	.60050	.78006	.60264	$\frac{.78159}{0.78169}$.60477	.78312	.60691	37
+ 6'	9.77699	.59840 .59844	9.77854	.60054 .60057	9.78008 .78011	.60268 .60271	9.78162 .78164	.60481	9.78315 .78317	.60694 .60698	36 35
26	.77704	.59847	.77859	.60061	.78013	.60275	.78167	.60488	.78320	.60701	34
27	.77707	.59851	.77862	.60065	.78016	.60278	.78170	.60492	.78322	.60705	33
+ 7'	9.77710	.59854	9.77864	.60068	9.78019	.60282	9.78172	.60495	9.78325	.60708	32
29	.77712	.59858	.77867	.60072	.78021	.60285	.78175 .78177	.60499	.78327 .78330	.60712	31
30 31	.77715 .77717	.59861	.77870 .77872	.60075	.78024 .78026	.60289	.78180	.60506	.78332	.60719	29
+ 8'	9.77720	.59869	9.77875	.60082	9.78029	.60296	9.78182	.60509	9.78335	.60723	28
33	.77723	.59872	.77877	.60086	.78031	.60300	.78185	.60513	.78338	.60726	27
34	.77725	.59876	.77880	.60090	.78034	.60303	.78187 .78190	.60516 .60520	.78340 .78343	.60730	26 25
$\frac{35}{+9'}$	$\frac{.77728}{9.77730}$.59879 .59883	$\frac{.77882}{9.77885}$.60093	$\frac{.78037}{9.78039}$.60307	$\frac{.78130}{9.78192}$.60524	9.78345	.60737	24
37	.77733	.59886	.77888	.60100	.78042	.60314	.78195	.60527	.78348	.60740	23
38	.77735	.59890	.77890	.60104	.78044	.60317	.78198	.60531	.78350	.60744	22
39	.77738	.59894	.77893	.60107	.78047	.60321	.78200	.60534	.78353	.69747	21
+ 10'	9.77741 .77743	.59897 .59901	9.77895	.60111 .60114	$9.78049 \\ .78052$.60324 .60328	9.78203 .78205	.60538 .60541	9.78355 .78358	.60751	20 19
42	.77746	.59904	.77900	.60118	.78054	.60332	.78208	.60545	.78360	.60758	18
43	.77748	.59908	.77903	.60122	.78057	.60335	.78210	.60548	.78363	.60762	17
+ 11′	9.77751	.59911	9.77906	.60125	9.78060	.60339	9.78213	.60552	9.78365	.60765	16
45 46	.77754 .77756	.59915	.77908 .77911	.60129	.78062	.60312	.78215 .78218	.60556 .60559	.78368 .78371	.60769	15 14
47	.77759	.59922	.77913	.60136	.78067	.60349	.78221	.60563	.78373	.60776	13
+ 12'	9.77761	.59926	9.77916	.60139	9.78070	.60353	9.78223	.60566	9.78376	.60779	12
49	.77764	.59929	.77918	.60143	.78072	.60356	.78226	.60570	.78378	.60783	11
50 51	.77766 .77769	.59933	.77921 .77924	.60146 .60150	.78075	.60360	.78228 .78231	.60573	.78381 .78383	.60786	10
+ 13'	9.77772	.59940	9.77926	.60154	9.78080	.60367	9.78233	.69580	9.78386	.60794	8
53	.77774	.59943	.77929	.60157	.78083	.60371	.78236	.60584	.78388	.60797	7
54	.77777	.59947	.77931	.60161	.78085	.60374	.78238	.60588	.78391	.60801	6
$\frac{55}{+ 14'}$	$\frac{.77779}{9.77782}$.59951	$\frac{.77934}{9.77936}$.60164 .60168	$\frac{.78088}{9.78090}$.60378 .60381	$\frac{.78241}{9.78243}$.60591	$\frac{.78393}{9.78396}$.60804 .60808	$\frac{5}{4}$
57	.77785	.59954	.77939	.60171	.78090	.60385	.78246	.60598	.78398	.60811	3
58	.77787	.59961	.77942	.60175	.78095	.60388	.78249	.60602	.78401	.60815	2
59	.77790	.59965	.77944	.60179	.78098	.60392	.78251	.60605	.78404	.60818	1
+ 15'	9.77792	.59968	9.77947	.60182	9.78101	.60396	9.78254	.60609	9.78406	.60822	0
5	17h	14m	17h	13m	17h	12m	17h	11m	17h	10m	

					114 (01011				·····		
	6h 50m	102° 30′	6h 51m	102° 45′	6h 52m	103° 0′	6h 53m		6h 54m	103° 30′	
S	Log. Hav.	Nat. Hav.	Hav.Log.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	9.78406	.60822	9.78558	.61035	9.78709	.61248	9.78859	.61460	9.79009	.61672	60
1	.78409	.60825	.78560	.61038	.78711	.61251	.78862	.61464	.79011	.61676	59
2 3	.78411 .78414	.60829 .66833	.78563 .78565	.61042 .61046	.78714 .78716	.61255 .61258	.78864 .78867	.61467 .61471	.79014 .79016	.61679 .61683	58 57
+ 1'	9.78416	.60836	9.78568	.61049	9.78719	.61262	9.78869	.61474	9.79019	.61686	56
5	.78419	.60840	.78570	.61053	.78721	.61265	.78872	61478	.79021	.61690	55
6	.78421	.60843	.78573	.61056	.78724	.61269	.78874	.61481	.79024	.61693	54
7	.78424	.60847	.78575	.61060	.78726	.61272	.78877	.61485	.79026	.61697	53
+ 2'	9.78426	.60850	9.78578	.61063	9.78729	.61276	9.78879	.61488	9.79029	.61701	52
9	.78429 .78431	.60854 .60857	.78581 .78583	.61067 .61070	.78731	.61279 .61283	.78882 .78884	.61492 .61495	.79031 .79034	.61704 .61708	51 50
11	.78434	.60861	.78586	.61074	.78737	.61287	.78887	.61499	.79034	.61711	49
+ 3′	9.78436	.60865	9.78588	.61077	9.78739	.61290	9.78889	.61502	9.79039	.61715	48
13	.78439	.60868	.78591	.61081	.78742	.61294	.78892	.61506	.79041	.61718	47
14	.78442	.60872	.78593	.61085	.78744	.61297	.78894	.61510	.79044	.61722	46
15	.78444	.60875	.78596	.61088	.78747	.61301	.78897	.61513	.79046	.61725	45
+ 4'	9.78447 .78449	.60879 .60882	9.78598 $.78601$.61092 .61095	9.78749 .78752	.61304 .61308	9.78899 .78902	.61517 .61520	9.79049 $.79051$.61729 .61732	44 43
18	.78452	.60886	.78603	.61099	.78754	.61311	.78904	.61524	.79054	.61736	43 42
19	.78454	.60889	.78606	.61102	.78757	.61315	.78907	.61527	.79056	.61739	41
+ 5'	9.78457	.60893	9.78608	.61106	9.78759	.61318	9.78909	.61531	9.79059	.61743	40
21	.78459	.60897	.78611	.61109	.78762	.61322	.78912	.61534	.79061	.61747	39
22	.78462	.60900	.78613	.61113	.78764	.61325 .61329	.78914	.61538	.79064	.61750	38
+ 6'	9.78467	.60904	$\frac{.78616}{9.78618}$.61116	$\frac{.78767}{9.78769}$.61333	$\frac{.78917}{9.78919}$.61541	$\frac{.79066}{9.79069}$.61754	37
25	.78469	.60911	.78621	.61124	.78772	.61336	.78922	.61548	.79071	.61761	35
26	.78472	.60914	.78623	.61127	.78774	.61340	.78924	.61552	.79074	.61764	34
27	.78474	.60918	.78626	.61131	.78777	.61343	.78927	.61556	.79076	.61768	33
+ 7'	9.78477	.60921	9.78628	.61134	9.78779	.61347	9.78929	.61559	9.79079	.61771	32
29 30	.78479 .78482	.60925 .60928	.78631 .78633	.61138 .61141	.78782	.61350 .61354	.78932 .78934	.61563 .61566	.79081	.61775	31
31	.78485	.60932	.78636	.61145	.78784 .78787	.61357	.78937	.61570	.79084 .79086	.61778	30 29
+ 8'	9.78487	.60936	9.78638	.61148	9.78789	.61361	9.78939	.61573	9.79089	.61785	28
33	.78490	.60939	.78641	.61152	.78792	.61364	.78942	.61577	.79091	.61789	27
34	.78492	.60943	.78643	.61155	.78794	.61368	.78944	.61580	.79094	.61792	26
35	.78495	.60946	.78646	.61159	.78797	.61372	.78947	.61584	.79096	.61796	25
+ 9'	9.78497 .78500	.60950 .60953	9.78649 $.78651$.61163 .61166	9.78799 .78802	.61375	9.78949 $.78952$.61587 .61591	9.79099 .79101	.61800 .61803	24 23
38	.78502	.60957	.78654	.61170	.78804	.61382	.78954	.61594	.79103	.61807	22
39	.78505	.60960	.78656	.61173	.78807	.61386	.78957	.61598	.79106	.61810	21
+ 10'	9.78507	.60964	9.78659	.61177	9.78809	.61389	9.78959	.61602	9.79108	.61814	20
41	.78510	.60967	.78661	.61189	.78812	.61393	.78962	.61605	.79111	.61817	19
42 43	.78512 .78515	.60971	.78664 .78666	.61184	.78814 .78817	.61396 .61400	.78964 .78967	.61609 .61612	.79113 .79116	.61821	18 17
+ 11'	9.78517	.60978	$\frac{.78669}{9.78669}$.61191	9.78819	.61403	9.78969	.61616	$\frac{.79116}{9.79118}$.61824	$\frac{17}{16}$
45	.78520	.60982	.78671	.61194	.78822	.61407	.78972	.61619	.79121	.61831	15
46	.78522	.60985	.78674	.61198	.78824	.61410	.78974	.61623	.79123	.61835	14
47	.78525	.60989	.78676	.61201	.78827	.61414	.78977	.61626	.79126	.61838	13
+ 12'	9.78528	.60992	9.78679	.61205	9.78829	.61418	9.78979	.61630	9.79128	.61842	12
49 50	.78530	.60996	.78681 .78684	.61209	.78832 .78834	.61421	.78982	.61633	.79131 .79133	.61845	11 10
51	.78535	.61003	.78686	.61216	.78837	.61428	.78987	.61640	.79136	.61853	9
+ 13'	9.78538	.61007	9.78689	.61219	9.78839	.61432	9.78989	.61644	9.79138	.61856	8
53	.78540	.61010	.78691	.61223	.78842	.61435	.78992	.61648	.79141	.61860	7
54 55	.78543 .78545	.61014	.78694 .78696	.61226 .61230	.78844 .78847	.61439 .61442	.78994 .78997	.61651 .61655	.79143	.61863	6
+ 14'	9.78548	.61021	9.78699	.61233	9.78849	.61446	9.78999	.61658	$\frac{.79146}{9.79148}$.61867	$\frac{5}{4}$
57	.78550	.61024	.78701	.61237	.78852	.61449	.79002	.61662	.79151	.61874	3
58	.78553	.61028	.78704	.61240	.78854	.61453	.79004	.61665	.79153	.61877	2
59	.78555	.61032	.78706	.61244	.78857	.61456	.79007	.61669	.79156	.61881	1
+ 15'	9.78558	.61035	9.78709	.61248	9.78859	.61460	9.79009	.61672	9.79158	.61884	0
	17	h 9m	17	h 8m	177	h 7m	17	h 6m	17	h 5m	
-			P		<u> </u>				<u> </u>		

	6h 55m	103° 45′	6h 56m	104° 0′	6h 57m	104° 15′	6h 58m	104° 30′	6h 59m	104° 45′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.79158	.61884	9.79306	.62096	9.79454	.62308	9.79601	.62519	9.79748	.62730	60
1	.79161	.61888	.79309	.62100	.79457	.62311	.79604	.62522	.79750	.62734	59
2	.79163	.61891	.79311	.62103	.79459	.62315	.79606	.62526	.79752	.62737	58
3	.79165	.61895	.79314	.62107	.79462	.62318	.79609	.62530	.79755	.62741	57
+ 1′	9.79168	.61898	9.79316	.62110	9.79464	.62322	9.79611	.62533	9.79757	.62744	56
5	.79170	.61902	.79319	.62114	.79466	.62325	.79613	.62537	.79760	.62748	55
6	.79173	.61905	.79321	.62117	.79469	.62329	.79616	.62540	.79762	.62751	54
7	.79175	.61909	.79324	.62121	.79471	.62332	.79618	.62544	.79765	.62755	55
+ 2'	9.79178	.61913	9.79326	.62124	9.79474	.62336	9.79621	.62547	9.79767	.62758	52
9	.79180	.61916	.79329	.62128	.79476	.62339	.79623	.62551	.79770	.62762	51
10	.79183 .79185	.61920	.79331 .79334	.62131 .62135	.79479	.62343	.79626	.62554	.79772 .79774	.62765	50
$\frac{11}{+3'}$	9.79188	.61923			.79481	.62346	.79628	.62558	$\frac{.79774}{9.79777}$.62769	49
	.79190	.61927 .61930	9.79336 $.79339$.62138 .62142	9.79484	.62350	9.79631	.62561	.79779	.62772 .62776	48
13 14	.79193	.61934	.79341	.62145	.79486 .79489	.62353	.79633 .79635	.62565 .62568	.79782	.62779	41
15	.79195	.61937	.79343	.62149	.79491	.62361	.79638	.62572	.79784	.62783	40
+ 4'	9.79198	.61941	9.79346	.62153	$\frac{.79191}{9.79493}$.62364	9.79640	.62575	9.79787	.62786	4
17	.79200	.61944	.79348	.62156	.79496	.62368	.79643	.62579	.79789	.62790	44 42 42
18	.79203	.61948	.79351	.62160	.79498	.62371	.79645	.62582	.79791	.62793	49
19	.79205	.61951	.79353	.62163	.79501	.62375	.79648	.62586	.79794	.62797	43
+ 5'	9.79208	.61955	9.79356	.62167	9.79503	.62378	9.79650	.62589	9.79796	.62800	40
21	.79210	.61958	.79358	.62170	.79506	.62382	.79653	.62593	.79799	.62804	35
22	.79213	.61962	.79361	.62174	.79508	.62385	.79655	.62596	.79801	.62807	38
23	.79215	.61966	.79363	.62177	.79511	.62389	.79657	.62600	.79804	.62811	37
+ 6'	9.79217	.61969	9.79366	.62181	9.79513	.62392	9.79660	.62603	9.79806	.62814	30
25	.79220	.61973	.79368	.62184	.79516	.62396	.79662	.62607	.79808	.62818	38
26	.79222	.61976	.79371	.62188	.79518	.62399	.79665	.62611	.79811	.62822	3.
27	.79225	.61980	.79373	.62191	.79520	.62403	.79667	.62614	.79813	.62825	33
+ 7'	9.79227	.61983	9.79376	.62195	9.79523	.62406	9.79670	.62618	9.79816	.62829	32
29 30	.79230 .79232	.61987 .61990	.79378 .79380	.62198 .62202	.79525 .79528	.62410 .62413	.79672 .79674	.62621 .62625	.79818 .79821	.62832	30
31	.79235	.61994	.79383	.62205	.79530	.62417	.79677	.62628	.79823	.62839	29
$\frac{31}{+8'}$	9.79237	.61997	9.79385	.62209	9.79533	.62420	9.79679	.62632	$\frac{.79825}{9.79825}$.62843	28
33	.79240	.62001	.79388	.62213	.79535	.62424	.79682	.62635	.79828	.62846	2
34	.79242	.62004	.79390	.62216	.79538	.62427	.79684	.62639	.79830	.62850	20
35	.79245	.62008	.79393	.62220	.79540	.62431	.79687	.62642	.79833	.62853	2
+ 9'	9.79247	.62011	9.79395	.62223	9.79542	.62434	9.79689	.62646	9.79835	.62857	24
37	.79250	.62015	.79398	.62227	.79545	.62438	.79692	.62649	.79838	.62860	23
38	.79252	.62018	.79400	.62230	.79547	.62442	.79694	.62653	.79840	.62864	22
39	.79255	.62022	.79403	.62234	.79550	.62445	.79696	.62656	.79842	.62867	21
+ 10′	9.79257	.62026	9.79405	.62237	9.79552	.62449	9.79699	.62660	9.79845	.62871	20
41.	.79260	.62029	.79407	.62241	.79555	.62452	.79701	.62663	.79847	.62874	15
42	.79262	.62033	.79410	.62244	.79557	.62456	.79704	.62667	.79850	.62878	18
43	.79264	.62036	.79412	.62248	.79560	.62459	.79706	.62670	.79852	.62881	17
+ 11'	9.79267	.62040	9.79415	.62251	9.79562	.62463	9.79709	.62674	9.79855	.62885	16
45 46	.79269 $.79272$.62043 .62047	.79417 .79420	.62255	.79565	.62466	.79711	.62677	.79857	.62888 .62892	18 14
40 47	.79274	.62050	.79420	.62258 .62262	.79567 .79569	.62470 .62473	.79714 .79716	.62681 .62684	.79859 .79862	.62895	13
$+\frac{47}{12'}$	$\frac{.79274}{9.79277}$.62054	9.79425	.62265	$\frac{.79509}{9.79572}$.62477	9.79718	.62688	$\frac{.79862}{9.79864}$.62899	12
49	.79279	.62057	.79425	.62269	.79574	.62480	.79721	.62691	.79867	.62902	11
50	.79282	.62061	.79430	.62272	.79577	.62484	.79723	.62695	.79869	.62906	10
51	.79284	.62064	.79432	.62276	.79579	.62487	.79726	.62698	.79872	.62909	9
+ 13'	9.79287	.62068	9.79434	.62279	9.79582	.62491	9.79728	.62702	9.79874	.62913	- 8
53	.79289	.62071	.79437	.62283	.79584	.62494	.79731	.62706	.79876	.62916	7
54	.79292	.62075	.79439	.62287	.79587	.62498	.79733	.62709	.79879	.62920	6
55	.79294	.62078	.79442	.62290	.79589	.62501	.79735	.62713	.79881	.62923	
+ 14'	9.79297	.62082	9.79444	.62294	9.79591	.62505	9.79738	.62716	9.79884	.62927	4
57	.79299	.62086	.79447	.62297	.79594	.62508	.79740	.62720	.79886	.62930	2
58 50	.79301	.62089	.79449	.62301	.79596	.62512	.79743	.62723	.79888	.62934	2
59	.79304	.62093	.79452	.62304	.79599	.62515	.79745	.62727	.79891	.62937	1
+ 15'	9.79306	.62096	9.79454	.62308	9.79601	.62519	9.79748	.62730	9.79893	.62941	0
	177	4m	17h	3m	17h	2m	17h	1 m	171	Om	,
	1 1	-7	17"	1	1/"	~	17"	4	1/"	· .	

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TABLE 45.

	w1	40=0.04	m1	050 474	W1 0	050 604	n/h am	1050 151	n/l ···	1000 01	
		105° 0′		05° 15′		05° 30′	l	05° 45′		106° 0′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.		_s
0	9.79893	.62941	9.80038	.63152	9.80183	.63362	9.80327	.63572	9.80470	.63782	60
1	.79896	.62944	.80041	.63155	.80185	.63365	.80329	.63576	.80472	.63785	59
2 3	.79898 .79901	.62948 .62951	.80043 .80046	.63159 .63162	.80188 .80190	.63369	.80331 .80334	.63579 .63583	.80474	.63789	58 57
+ 1'	9.79903	.62955	9.80048	.63166	9.80192	.63376	9.80336	.63586	$\frac{.80477}{9.80479}$.63796	56
7 5	.79905	.62958	.80050	.63169	.80192	.63379	.80339	.63590	.80482	.63799	55
6	.79908	.62962	.80053	.63173	.80197	.63383	.80341	.63593	.80484	.63803	54
7	.79910	.62965	.80055	.63176	.80200	.63386	.80343	.63597	.80486	.63806	53
+ 2'	9.79913	.62969	9.80058	.63180	9.80202	.63390	9.80346	.63600	9.80489	.63810	52
9	.79915	.62973	.80060	.63183	.80204	.63393	.80348	.63604	.80491	.63813	51
10	.79918	.62976	.80063	.63187	.80207	.63397	.80351	.63607	.80494	.63817	50
$\frac{11}{+3'}$	$\frac{.79920}{9.79922}$.62980 .62983	.80065	.63190	$\frac{.80209}{9.80212}$.63400	$\frac{.80353}{9.80355}$.63611	.80496	.63820	49
+ 3'	.79925	.62987	9.80067	.63194 .63197	.80214	.63404	.80358	.63614	9.80498 .80501	.63824 .63827	48 47
14	.79927	.62990	.80072	.63201	.80214	.63411	.80360	.63621	.80503	.63831	46
15	.79930	.62994	.80075	.63204	.80219	.63414	.80362	.63625	.80505	.63834	45
+ 4'	9.79932	.62997	9.80077	.63208	9.80221	.63418	9.80365	.63628	9.80508	.63838	44
17	.79935	.63001	.80079	.63211	.80224	.63421	.80367	.63632	.80510	.63841	43
18	.79937	.63004	.80082	.63215	.80226	.63425	.80370	.63635	.80513	.63845	42
19	.79939	.63008	.80084	.63218	.80228	.63428	.80372	.63639	.80515	.63848	41
+ 5'	9.79942	.63011	9.80087	.63222	9.80231	.63432	9.80374	.63642	9.80517	.63852	40
21 22	.79944 .79947	.63015 .63018	.80089 .80091	.63225	.80233 .80236	.63435	.80377	.63646	.80520	.63855	39
23	.79947	.63022	.80091	.63229 .63232	.80238	.63439	.80379 .80382	.63649	.80522 $.80524$.63859 .63862	38 37
+ 6'	9.79951	.63025	9.80096	.63236	9.80240	.63446	$\frac{80382}{9.80384}$.63656	$\frac{.80524}{9.80527}$.63866	36
25	.79954	.63029	.80099	.63239	.80243	.63450	.80386	.63660	.80529	.63869	35
26	.79956	.63032	.80101	.63243	.80245	.63453	80389	.63663	.80532	.63873	34
27	.79959	.63036	.80103	.63246	.80248	.63457	.80391	.63666	.80534	.63876	33
+ 7	9.79961	.63039	9.80106	.63250	9.80250	.63460	9.80393	.63670	9.80536	.63880	32
29	.79964	.63043	.80108	.63253	.80252	.63464	.80396	.63673	.80539	.63883	31
30 31	.79966 .79968	.63046	.80111 .80113	.63257	.80255	.63467	.80398	.63677	.80541	.63887	30
+ 8'	$\frac{.79903}{9.79971}$.63050 .63053	9.80116	.63260	.80257	.63471	.80401	.63680	.80543	.63890	29
33	.79973	.63057	.80118	.63267	$9.80260 \\ .80262$.63478	$9.80403 \\ .80405$.63684 .63687	$9.80546 \\ .80548$.63894	28 27
34	.79976	.63060	.80120	.63271	.80264	.63481	.80408	.63691	.80551	.63901	26
35	.79978	.63064	.80123	.63274	.80267	.63485	.80410	.63694	.80553	.63904	25
+ 9'	9.79980	.63067	9.80125	.63278	9.80269	.63488	9.80413	.63698	9.80555	.63908	24
37	.79983	.63071	.80128	.63281	.80272	.63492	.80415	.63701	.80558	.63911	23
38	.79985	.63074	.80130	.63285	.80274	.63495	.80417	.63705	.80560	.63915	22
39 + 10'	$\frac{.79988}{9.79990}$.63078	.80132	.63288	.80276	.63499	.80420	.63708	.80562	.63918	21
+ 10' 41	.79993	.63081 .63085	$9.80135 \\ .80137$.63292 .63295	$9.80279 \\ .80281$.63502	9.80422	.63712	9.80565	.63922	20
42	.79995	.63088	.80140	.63299	.80284	.63506 .63509	.80424 .80427	.63715 .63719	.80567 $.80570$.63925	19
43	.79997	.63092	.80142	.63302	.80286	.63513	.80427	.63722	.80570	.63932	18 17
+ 11′	9.80000	.63095	9.80144	.63306	9.80288	.63516	$\frac{0.80120}{9.80432}$.63726	$\frac{.80572}{9.80574}$.63936	$\frac{17}{16}$
45	.80002	.63099	.80147	.63309	.80291	.63520	.80434	.63729	.80577	.63939	15
46	.80005	.63102	.80149	.63313	.80293	.63523	.80436	.63733	.80579	.63943	14
47	.80007	.63106	.80152	.63316	.80296	.63527	.80439	.63736	.80581	.63946	13
+ 12'	9.80009	.63109	9.80154	.63320	9.80298	.63530	9.80441	.63740	9.80584	.63950	12
49 50	.80012	.63113	.80156 .80159	.63323	.80300 .80303	.63534 .63537	.80444 .80446	.63743	.80586	.63953	11
51	.80017	.63120	.80161	.63330	.80305	.63541	.80448	.63747	.80589 .80591	.63957 .63960	$\begin{vmatrix} 10 \\ 9 \end{vmatrix}$
+ 43'	9.80019	.63123	9.80164	.63334	9.80307	.63544	9.80451	.63754	9.80593	.63964	$\frac{3}{8}$
53	.80022	.63127	.80166	.63337	.80310	.63548	.80453	.63757	.80596	.63967	7
54	.80024	.63131	.80168	.63341	.80312	.63551	.80455	.63761	.80598	.63971	6
55	.80026	.63134	.80171	.63344	.80315	.63555	.80458	.63764	.80600	.63974	5
+ 14'	9.80029	.63138	9.80173	.63348	9.80317	.63558	9.80460	.63768	9.80603	.63977	4
57 58	.80031 .80034	.63142 .63145	.80176	.63351	.80319	.63562	.80463	.63771	.80605	.63981	3
59	.80034	.63148	.80178 .80180	.63355 .63358	.80322 .80324	.63565 .63569	.80465	.63775	.80607	.63984	2
+ 15'	9.80038	.63152	9.80183	.63362	$\frac{.80324}{9.80327}$.63572	$\frac{.80467}{9.80470}$.63778	.80610	63988	1
							J.00410	.03182	9.80612	.63991	0
	16h	59m	16h	58m	16h	57m	16h	56m	16^h	55^m	

	7h 5m 1	06° 15′	7h 6m 1	06° 30′	7h 7m 1	06° 45′	7h 2m	107° 0′	7h 0m 1	107° 15′	
	Log. Hav.			Nat. Hav.			Log. Hav.			Nat. Hav.	8
	i										-
0	9.80612	.63991 .63995	$9.80754 \\ .80756$.64201 .64204	9.80895 .80898	.64410 .64413	9.81036 .81038	.64619 .64622	9.81176 .81178	.64827	60 59
2	.80617	.63998	.80759	.64208	.80900	.64417	.81040	.64626	.81180	.64834	58
3	.80619	.64002	.80761	.64211	.80902	.64420	.81043	.64629	.81183	.64838	57
+ 1'	$9.80622 \\ .80624$.64005	9.80763	.64215 .64218	$9.80905 \\ .80907$.64424	9.81045 .81047	.64636	$9.81185 \\ .81187$.64841	56 55
6	.80626	.64012	.80768	.64222	.80909	.64431	.81050	.64639	.81190	.64848	54
7	.80629	.64016	.80771	.64225	.80912	.64434	.81052	.64643	.81192	.64851	53
+ 2'	$9.80631 \\ .80634$.64019 .64023	9.80773 .80775	.64229 .64232	$9.80914 \\ .80916$.64438 .64441	$9.81054 \\ .81057$.64646 .64650	9.81194 .81197	.64855 .64858	52 51
10	.80636	.64026	.80778	.64236	.80919	.64445	.81059	.64653	.81199	.64862	50
11	.80638	.64030	.80780	.64239	.80921	.61448	.81061	.64657	.81201	.64865	49
$+\frac{3'}{13}$	$9.80641 \\ .80643$.64033 .64037	9.80782 .80785	.64243 .64246	9.80923 .80926	.64452 .64455	$9.81064 \\ .81066$.64660 .64664	$9.81204 \\ .81206$.64869 .64872	48 47
14	.80645	.64040	.80787	.64250	.80928	.61459	.81068	.64667	.81208	.64876	46
15	.80648	.64044	.80789	.64253	.80930	.64462	.81071	.64671	.81211	.64879	45
+ 4'	$9.80650 \\ .80652$.64047 .64051	9.80792	.64257 .64260	9.80933	.64166 .64169	.81073 .81075	.64674 .64678	9.81213 .81215	.64883 .64886	44 43
18	.80655	.64054	.80704	.64261	.80937	.61172	.81078	.64681	.81217	.64890	42
19	.80657	.64958	.80799	.64267	.80940	.64476	.81080	.64685	.81220	.64893	41
+ 5'	9.80660 .80662	.64061 .64065	9.80801 .80804	.64270 .64274	9.80942 80944	.64479 .64483	9.81082 .81085	.64688 .64692	9.81222 .81224	.64897 .64900	40 39
22	.80664	.64068	.80806	.64277	.80947	.64486	.81087	.64695	.81227	.64903	38
23	.80667	.64072	.80808	.64281	.80949	.64490	.81089	.64699	.81229	.64907	37
$+ \frac{6'}{25}$	9.80669 .80671	.64075 .64079	9.80811	.64284 .64288	9.80952 $.80954$.64493 .64497	9.81092 .81094	.64702 .64705	9.81231 .81234	.64910	36 35
26	.80674	.64082	.80815	.64291	.80956	.64500	.81094	.64709	.81236	.64917	34
27	.80676	.64086	.80818	.64295	.80959	.64504	.81099	.64712	.81238	.64921	33
+ 7	9.80678	.64089	9.80820	.64298 .64302	9.80961	.64507 .64511	9.81101	.64716 .64719	9.81241 .81243	.64924	32 31
29 30	.80681 .80683	.64093 .64096	.80822 .80825	.64305	.80963 .80966	.64514	.81103 .81106	.64723	.81245	.64931	30
31	.80686	.64100	.80827	.64309	.80968	.64518	.81108	.64726	.81248	.64935	29
+ 8'	9.80688	.64103	9.80829	.64312 .64316	9.80970 .80973	.64521 .64525	9.81110	.64730 .64733	$9.81250 \\ .81252$.64938 .64942	28 27
33 34	.80690 .80693	.64107 .64110	.80832	.64319	.80975	.64528	.81113 .81115	.64737	.81255	.64945	26
35	.80695	.64114	.80836	.64323	.80977	.64532	.81117	.64740	.81257	.64949	25
+ 9'	9.80697	.64117	9.80839	.64326 .64330	9.80980	.64535 .64539	9.81120	.64744	$9.81259 \\ .81262$.64952 .64956	24
37 38	.80700 .80702	.64121 .64124	.80841 .80844	.64333	.80982 .80984	.64542	.81122 .81124	.64747 .64751	.81264	.64959	22
39	.80704	.64128	.80846	.64337	.80987	.64546	.81127	.64754	.81266	.64962	21
+ 10'	9.80707	.64131	9.80848	.64340	9.80989	.64549 .64552	9.81129	.64758	9.81269 .81271	.64966 .64969	20
41 42	.80709 $.80712$.64135 .64138	.80851 .80853	.64344 .64347	.80991 .80994	.64556	.81131 .81134	.64761 .64765	.81273	.64973	19 18
43	.80714	.64142	.80855	.64351	.80996	.64559	.81136	.64768	.81276	.64976	17
+ 11'	9.80716	.64145	9.80858	.64354 .64358	9.80998 .81001	.64563 .64566	9.81138 .81141	.64772 .64775	9.81278 :81280	.64980 .64983	16 15
45 46	.80719 .80721	.64148 .64152	.80860 .80862	.64361	.81001	.64570	.81143	.64778	.81280	.64987	14
47	.80723	.64155	.80865	.64365	.81005	.64573	.81145	.64782	.81285	.64990	13
+ 12'	9.80726	.64159	9.80867	.64368 .64372	9.81008 .81010	.04577 .64580	9.81148 .81150	.64785 .64789	$9.81287 \\ .81289$.64994 .64997	12 11
49 50	.80728 .80730	.64162 .64166	.80869 .80872	.64375	.81010	.64584	.81150	.64792	.81292	.65001	10
51	.80733	.64169	.80874	.64378	.81015	.64587	.81155	.64796	.81294	.65004	9
+ 13' 53	$9.80735 \\ .80738$.64173 .64176	9.80876 .80879	.64382 .64385	9.81017 .81019	.64591 .64594	9.81157 .81159	.64799 .64803	$9.81296 \\ .81299$.65908 .65011	8
54	.80740	.64180	.80881	.64389	.81019	.64598	.81162	.64806	.81301	.65014	6
55	.80742	.64183	.80883	.64392	.81024	.64601	.81164	.64810	.81303	.65018	5
+ 14'	9.80745 .80747	.64187 .64190	9.80886	.64396 .64399	9.81026 .81029	.64605 .64608	9.81166 .81169	.64813 .64817	9.81306 .81308	.65021 .65025	43
57 58	.80747	.64194	.80891	.64403	.81029	.64612	.81171	.64820	.81310	.65028	2
59	80752	.64197	.80893	.64406	.81033	.64615	.81173	.64824	.81313	.65032	1
+ 15'	9.80754	.64201	9.80895	.64410	9.81036	.64619	9.81176	.64827	9.81315	.65035	0
	16h	54m	16h	53m	16h	52m	16h	51m	16h.	50m	

					1						
	7h 10m	107° 30′	7h 11m	107° 45′	7h 12m	108° 0′	7h 13m	108° 15′	7h 14m	108° 30′	
8	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
. 0	9.81315	.65035	9.81454	.65243	9.81592	.65451	9.81729	.65658	9.81866	.65865	60
1	.81317 .81320	.65039 .65042	.81456 .81458	.65247 .65250	.81594 .81596	.65454 .65458	.81731 .81733 _e	.65662 .65665	.81868 .81870	.65869	59 58
2 3	.81322	.65046	.81460	.65254	.81598	.65461	.81736	.65668	.81872	.65876	57
+ 1'	9.81324	.65049	9.81463	.65257	9.81601	.65465	9.81738	.65672	9.81875	.65879	56
5	.81326	.65053	.81465	.65261	.81603	.65468	.81740	.65675	.81877	.65882	55
6	.81329	.65056	.81467	.65264	.81605	.65472	.81743	.65679	.81879	.65886	54
$\frac{7}{+2'}$.81331 9.81333	.65060 .65063	$\frac{.81470}{9.81472}$.65267	$\frac{.81608}{9.81610}$.65475	$\frac{.81745}{9.81747}$.65682 .65686	$\frac{.81882}{9.81884}$.65889	53 52
+ 2'	.81336	.65066	.81474	.65274	.81612	.65482	.81749	.65689	.81886	.65896	51
10	.81338	.65070	.81477	.65278	.81614	.65485	.81752	.65693	.81888	.65900	50
11	.81340	.65073	.81479	.65281	.81617	.65489	.81754	.65696	.81891	.65903	49
+ 3'	9.81343	.65077	9.81481	.65285	9.81619	.65492	9.81756	.65790	9.81893	.65907 .65910	48
13 14	.81345 .81347	.65080 .65084	.81483 .81486	.65288 .65292	.81621 $.81624$.65496 .65499	.81759 .81761	.65703 .65707	.81895 .81897	.65914	47 46
15	.81350	.65087	81488	.65295	.81626	.65503	.81763	.65710	.81900	.65917	45
+ 4'	9.81352	.65091	9.81490	.65299	9.81628	.65506	9.81765	.65713	9.81902	.65920	44
17	.81354	.65094	.81493	.65302	.81631	.65510	.81768	.65717	.81904	.65924	43
18 19	.81357 .81359	.65098 .65101	.81495 .81497	.65306 .65309	.81633 $.81635$.65513 .65516	.81770 .81772	.65720 .65724	.81907 .81909	.65927 .65931	42 41
+ 5'	9.81361	.65105	$\frac{.81437}{9.81500}$.65312	9.81637	.65520	9.81775	.65727	9.81911	.65934	40
21	.81364	.65108	.81502	.65316	.81640	.65523	.81777	.65731	.81913	.65938	39
22	.81366	.65112	.81505	.65319	.81642	.65527	.81779	.65734	.81916	.65941	38
23	.81368	.65115	.81507	$-\frac{.65323}{.5333}$.81644	.65530	.81781	.65738	.81918	.65944	37
+ 6'	9.81370 .81373	.65118 .65122	9.81509 .81511	.65326 .65330	9.81647 .81649	.65534 .65537	9.81784 .81786	.65741	$9.81920 \\ .81922$.65948 .65951	36 35
26	.81375	.65125	.81513	.65333	.81651	.65541	.81788	.65748	.81925	.65955	34
27	.81377	.65129	.81516	.65337	.81653	.65544	.81791	.65751	.81927	.65958	33
+ 7'	9.81380	.65132	9.81518	.65340	9.81656	.65548	9.81793	.65755	9.81929	.65962	32
29 30	.81382	.65136 .65139	.81520 .81523	.65344	.81658	.65551	.81795	.65758	.81931 .81934	.65965 .65969	31 30
31	.81384 .81387	.65143	.81525	.65347 .65351	.81660 .81663	.65555 .65558	.81797 .81800	.65762 .65765	.81936	.65972	29
+ 8'	9.81389	.65146	9.81527	.65354	9.81665	.65561	9.81802	.65769	9.81938	.65976	28
33	.81391	.65150	.81530	.65357	.81667	.65565	.81804	.65772	.81941	.65979	27
34	.81394	.65153	.81532	.65361	.81669	.65568	.81806	.65776	.81943	.65982	26
$\frac{35}{+9'}$.81396 9.81398	.65157 .65160	$\frac{.81534}{9.81536}$.65364 .65368	$\frac{.81672}{9.81674}$.65572	$\frac{.81809}{9.81811}$.65779 .65782	$\frac{.81945}{9.81947}$.65986 .65989	25 24
37	.81400	.65164	.81539	.65372	.81676	.65579	.81813	.65786	.81950	.65993	23
38	.81403	.65167	.81541	.65375	.81679	.65582	.81816	.65789	.81952	.65996	22
39	.81405	.65171	.81543	.65378	.81681	.65586	.81818	.65793	.81954	.66000	21
+ 10' 41	9.81407 .81410	.65174 .65177	9.81546 .81548	.65382 .65385	9.81683 .81685	.65589 .65593	9.81820	.65796	9.81956 .81959	.66003 .66006	20 19
42	.81412	.65181	.81550	.65389	.81688	.65596	.81822 .81825	.65800 .65803	.81961	.66010	18
43	.81414	.65184	.81552	.65392	.81690	.65599	.81827	.65807	.81963	.66013	17
+ 11'	9.81417	.65188	9.81555	.65396	9.81692	.65603	.81829	.65810	9.81965	.66017	16
45 46	.81419 .81421	.65191 .65195	.81557 .81559	.65399 .65402	.81695 .81697	.65606	.81832	.65813	.81968 .81970	.66020 .66024	15 14
47	.81424	.65198	.81562	.65406	.81699	.65610 .65613	.81834 .81836	.65817 .65820	.81972	.66027	13
+ 12'	9.81426	.65202	9.81564	.65409	9.81701	.65617	9.81838	.65824	9.81975	.66031	12
49	.81428	.65205	.81566	.65413	.81704	.65620	.81841	.65827	.81977	.66034	11
50 51	.81430	.65209	.81569 .81571	.65416	.81706	.65624	.81843	.65831	.81979	.66038	10
$\frac{51}{+13'}$	$\frac{.81433}{9.81435}$.65212 .65216	$\frac{.81571}{9.81573}$.65420 .65423	$\frac{.81708}{9.81711}$.65627	$\frac{.81845}{9.81847}$.65834 .65838	$\frac{.81981}{9.81984}$.66041	- 9 -8
53	.81437	.65219	.81575	.65427	.81713	.65634	.81850	.65841	.81986	.66048	7
54	.81440	.65222	.81578	.65430	.81715	.65637	.81852	.65845	.81988	.66051	6
55	.81442	.65226	.81580	.65434	.81717	.65641	.81854	.65848	.81990	.66055	5
+ 14' 57	9.81444	.65229 .65233	9.81582 .81585	.65437 .65440	9.81720 .81722	.65644 .55648	9.81857 .81859	.65851 .65855	9.81993 .81995	.66058 .66062	4 3
58	.81449	.65236	.81587	.65444	.81722	.65651	.81861	.65858	.81995	.66065	2
59	.81451	.65240	.81589	.65447	.81727	.65655	.81863	.65862	.81999	.66068	1
+ 15'	9.81454	.65243	9.81592	.65451	9.81729	.65658	9.81866	.65865	9.82002	.66072	0
	16h	49m	16h	48m	16h 4	γm	16h	46m	16h	45m	
	20.	17	20.	10	20 4		10.0	10	10	, ,	

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TABLE 45.

	7h 15m 108° 45′		7h 16m 109° 0′		7h 17m 109° 15'		7h 18m 109° 30′		7h 19m 109° 45′		_
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	9.82002	.66072	9.82137	.66278	9.82272	.66485	9.82406	.66690	9.82540	.66896	60
1	.82004	.66075	.82139	.66282	.82274	.66488	.82409	.66694	.82542	.66899	59
2 3	.82006	.66079	.82142	.66285	.82277	.66491	.82411	.66697	.82544	.66903	58
+ 1'	$\frac{.82009}{9.82011}$.66082	$\frac{.82144}{9.82146}$.66289 .66292	$\frac{.82279}{9.82281}$	$\frac{.66495}{.66498}$	$\frac{.82413}{9.82415}$.66701 .66704	$\frac{.82547}{9.82549}$.66906 .66910	$\frac{57}{56}$
5	.82013	.66089	.82148	.66296	.82283	.66502	.82417	.66707	0.82549 0.82551	.66913	55
6	.82015	.66093	.82151	.66299	.82286	.66505	.82420	.66711	.82553	.66916	54
7	.82018	.66096	.82153	.66302	.82288	.66508	.82422	.66714	.82555	.66920	53
+ 2'	9.82020	.66100	9.82155	.66306	9.82290	.66512	9.82424	.66718	9.82558	.66923	52
9 10	.82022 .82024	.66103 .66106	.82157 $.82160$.66309 .66313	.82292 .82294	.66515 .66519	.82426 .82429	.66721 .66725	.82560 $.82562$.66927 .66930	51 50
11	.82027	.66110	.82162	.66316	.82297	.66522	.82431	.66728	.82564	.66933	49
$\overline{+ 3'}$	9.82029	.66113	9.82164	.66320	9.82299	.66526	9.82433	.66731	9.82567	.66937	48
13	.82031	.66117	.82166	.66323	.82301	.66529	.82435	.66735	.82569	.66940	47
14 15	.82033 .82036	.66120 .66124	.82169 .82171	.66330	.82303 .82306	.66533 .66536	.82438 .82440	.66738 .66742	.82571 .82573	.66944	46 45
+ 4'	9.82038	.66127	$\frac{.82171}{9.82173}$.66333	9.82308	.66539	9.82442	.66745	$\frac{.82575}{9.82575}$.66951	44
17	.82040	.66130	.82175	.66337	.82310	.66543	.82444	.66749	.82578	.66954	43
18	.82042	.66134	.82178	.66340	.82312	.66546	.82446	.66752	.82580	.66957	42
19	.82045	.66137	.82180	.66344	.82315	.66550	.82449	.66755	.82582	.66961	41
$+ \frac{5'}{21}$	9.82047	.66141 .66144	9.82182 .82184	.66347 .66351	$9.82317 \\ .82319$.66553 .66557	$9.82451 \\ .82453$.66759 .66762	$9.82584 \\ .82587$.66964 .66968	40 39
22	.82051	.66148	.82187	.66354	.82321	.66560	.82455	.66766	.82589	.66971	38
23	.82054	.66151	.82189	.66357	.82324	.66563	.82458	.66769	.82591	.66975	37
+ 6'	9.82056	.66155	9.82191	.66361	9.82326	.66567	9.82460	.66773	9.82593	.66978	36
25 26	.82058 .82061	.66158 .66161	.82193 .82196	.66364 .66368	.82328 .82330	.66570	.82462 $.82464$.66776	.82595 .82598	.66981 .66985	35 34
27	.82063	.66165	.82198	.66371	.82333	.66574	.82467	.66779 .66783	.82600	.66988	33
+ 7'	9.82065	.66168	9.82200	.66375	9.82335	.66581	9.82469	.66786	9.82602	.66992	32
29	.82067	.66172	.82202	.66378	.82337	.66584	.82471	.66790	.82604	.66995	31
$\frac{30}{31}$.82070	.66175	.82205	.66382	.82339	.66587	.82473	.66793	.82606	.66998	30
$\frac{31}{+8'}$	$\frac{.82072}{9.82074}$.66179 .66182	$\frac{.82207}{9.82209}$.66385 .66388	$\frac{.82341}{9.82344}$.66591 .66594	$\frac{.82475}{9.82478}$.66797	$\frac{.82609}{9.82611}$.67002	29
33	.82076	.66186	.82211	.66392	.82346	.66598	.82480	.66803	.82613	.67009	27
34	.82079	.66189	.82214	.66395	.82348	.66601	.82482	.66807	.82615	.67012	26
35	.82081	.66192	.82216	.66399	.82350	.66605	.82484	.66810	.82618	.67016	25
+ 37	9.82083 $.82085$.66196 .66199	9.82218 $.82220$.66402 .66406	9.82353 $.82355$.66608 .66611	$9.82487 \\ .82489$.66814 .66817	$9.82620 \\ .82622$.67019 .67022	24 23
38	.82088	.66203	.82223	.66409	.82357	.66615	.82491	.66821	.82624	.67026	22
39	.82090	.66206	.82225	.66412	.82359	.66618	.82493	.66824	.82627	.67029	21
+ 10'	9.82092	.66210	9.82227	.66416	9.82362	.66622	9.82495	.66827	9.82629	.67033	20
41 42	.82094 .82097	.66213 .66217	.82229 .82232	.66419 .66423	.82364	.66625	.82498	.66831	.82631 .82633	.67036	19
43	.82099	.66220	.82234	.66426	.82366 .82368	.66629 .66632	.82500 .82502	.66834 .66838	.82635	.67039 .67043	18 17
+ 11'	9.82101	.66223	9.82236	.66430	9.82371	.66635	9.82504	.66841	9.82638	.67046	16
45	.82103	.66227	.82238	.66433	.82373	.66639	.82507	.66844	.82640	.67050	15
46 47	.82106 .82108	.66230	.82241	.66436	.82375	.66642	.82509	.66848	.82642	.67053	14
$\frac{47}{+12'}$	9.82110	.66234 .66237	$\frac{.82243}{9.82245}$.66440 .66443	$\frac{.82377}{9.82380}$.66646	$\frac{.82511}{9.82513}$.66851	$\frac{.82644}{9.82646}$.67057 .67060	$\frac{13}{12}$
49	.82112	.66241	.82247	.66447	.82382	.66653	.82515	.66858	.82649	.67063	11
50	.82115	.66244	.82250	.66450	.82384	.66656	.82518	.66862	.82651	.67067	10
51	.82117	.66247	.82252	.66454	.82386	.66659	.82520	.66865	.82653	.67070	9
+ 13 ′	$9.82119 \\ .82121$.66251 .66254	$9.82254 \\ .82256$.66457 .66460	9.82388 $.82391$.66663	9.82522	.66868	$9.82655 \\ .82657$	67074	8
54	.82124	.66258	.82259	.66464	.82393	.66666 .66670	.82524 $.82527$.66872 .66875	.82660	.67077 .67081	6
55	.82126	.66261	.82261	.66467	.82395	.66673	.82529	.66879	.82662	.67084	5
+ 14'	9.82128	.66265	9.82263	.66471	9.82397	.66677	9.82531	.66882	9.82664	.67087	4 3
57 58	.82130 .82133	.66268	.82265 $.82268$.66474 .66478	.82400 .82402	.66680 .66683	.82533	.66886	.82666 .82668	67091	3
59	.82135	.66275	.82270	.66481	.82402	.66687	.82535 .82538	.66889 .66892	.82671	.67094 .67098	2
+ 15'	9.82137	.66278	9.82272	.66485	9.82406	.66690	9.82540	.66896	9.82673	.67101	0
	16h 44m		16h 43m		16h 42m		16h 41m		16h 40m		
			1								

	7h 20m 110° 0′		7h 21m 110° 15'		7h 22m 110° 30′		7h 23m 110° 45'		7h 24m 111° 0′		
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
. 0	9.82673	.67101	9.82805	.67306	9.82937	.67510	9.83068	.67715	9.83199	.67918	60
1	.82675	.67104	.82807	.67309	.82939	.67514	.83070	.67718	.83201	.67922	59
2 3	.82677 .82680	.67108 .67111	.82810	.67313 .67316	.82941	.67517	.83073	.67721 .67725	.83203	.67925	58
	9.82682	.67115	$\frac{.82812}{9.82814}$.67320	$\frac{.82944}{9.82946}$.67521	$\frac{.83075}{9.83077}$		$\frac{.83205}{9.83207}$.67929	57
+ 1'	.82684	.67118	.82816	.67323	.82948	.67524	.83079	.67728 .67732	.83210	.67935	56 55
6	.82686	.67122	.82818	.67326	.82950	.67531	.83081	.67735	.83212	.67939	54
7	.82688	.67125	.82821	.67330	.82952	.67534	.83083	.67738	.83214	.67942	53
+ 2'	9.82691	.67128	9.82823	.67333	9.82955	.67538	9.83086	.67742	9.83216	.67946	52
9	.82693	.67132	.82825	.67337	.82957	.67541	.83088	.67745	.83218	.67949	51
10	.82695	.67135	.82827	.67340	.82959	.67544	.83090	.67749	.83220	.67952	50
11	.82697	.67139	.82829	.67343	.82961	.67548	.83092	.67752	.83223	.67956	49
+ 3'	9.82699 .82702	.67142 .67145	9.82832 .82834	.67347 .67350	9.82963 $.82966$.67551 .67555	9.83094 .83097	.67755 .67759	9.83225 $.83227$.67959 .67963	48
14	.82704	.67149	.82836	.67354	.82968	.67558	.83099	.67762	.83229	.67966	47 46
15	.82706	.67152	.82838	.67357	.82970	.67561	.83101	.67766	.83231	.67969	45
+ 4'	9.82708	.67156	9.82840	.67360	9.82972	.67565	9.83103	.67769	9.83233	.67973	44
17	.82710	.67159	.82843	.67364	.82974	.67568	.83105	.67772	.83236	.67976	43
18	.82713	.67163	.82845	.67367	.82976	.67572	.83107	.67776	.83238	.67979	42
19	.82715	.67166	.82847	.67371	.82979	.67575	.83110	.67779	.83240	.67983	41
+ 5'	9.82717	.67169	9.82849	.67374	9.82981	.67578	9.83112	.67783	9.83242	.67986	40
21 22	.82719 .82722	.67173 .67176	.82851 $.82854$.67377 .67381	.82983 .82985	.67582 .67585	.83114 .83116	.67786 .67789	.83244 .83246	.67990 .67993	39 38
23	.82724	.67180	.82856	.67384	.82987	.67589	.83118	.67793	.83249	.67996	37
+ 6'	9.82726	.67183	9.82858	.67388	9.82990	.67592	9.83120	.67796	9.83251	.68000	36
25	.82728	.67186	.82860	.67391	.82992	.67595	.83123	.67800	.83253	.68003	35
26	.82730	.67190	.82862	.67395	.82994	.67599	.83125	.67803	.83255	.68007	34
27	.82733	.67193	.82865	.67398	.82996	.67602	.83127	67806	.83257	.68010	33
+ 7	9.82735	.67197	9.82867	.67401	9.82998	.67606	9.83129	.67810	9.83259	.68013	32
29 30	.82737 .82739	.67200 .67203	.82869 .82871	.67405 .67408	.83001 .83003	.67609 .67613	.83131 .83134	.67813	.83262 .83264	.68017	31
30 31	.82741	.67207	.82873	.67412	.83005	.67616	.83136	.67820	.83266	.68024	29
+ 8'	9.82744	.67210	9.82876	.67415	9.83007	.67619	9.83138	.67823	9.83268	.68027	28
33	.82746	.67214	.82878	.67418	.83009	.67623	.83140	.67827	.83270	.68030	27
34	.82748	.67217	.82880	.67422	.83011	.67626	.83142	.67830	.83272	.68034	26
35	.82750	.67221	.82882	.67425	.83014	.67630	.83144	.67834	.83275	.68037	25
+ 9'	9.82752	.67224	9.82884	.67429	9.83016	.67633	9.83147	.67837	9.83277	.68041	24
37 38	.82755 $.82757$.67227 .67231	.82887 .82889	.67432 .67435	.83018 .83020	.67636 .67640	.83149	.67840 .67844	.83279 .83281	.68044 .68047	23 22
39	.82759	.67234	.82891	.67439	.83020	.67643	.83153	.67847	.83283	.68051	21
+ 10'	9.82761	.67238	9.82893	.67442	9.83025	.67647	9.83155	.67850	9.83285	.68054	20
41	.82763	.67241	.82895	.67446	.83027	.67650	.83157	.67854	.83288	.68058	19
42	.82766	.67244	.82898	.67449	.83029	.67653	.83160	.67857	.83290	.68061	18
43	.82768	.67248	.82900	.67452	.83031	.67657	.83162	.67861	.83292	.68064	17
+ 11'	9.82770	.67251	9.82902	.67456	9.83033	.67660	9.83164	.67864	9.83294	.68068	16
45 46	.82772 .82774	.67255 .67258	.82904 .82906	.67459 .67463	.83035 .83038	.67664	.83166 .83168	.67868 .67871	.83296 .83298	.68071	15 14
40 47	.82777	.67261	.82909	.67466	.83040	.67670	.83170	.67874	.83301	.68078	13
+ 12'	9.82779	.67265	9.82911	.67469	9.83042	.67674	9.83173	.67878	9.83303	.68081	12
49	.82781	.67268	.82913	.67473	.83044	.67677	.83175	.67881	.83305	.68085	11
5 0	.82783	.67272	.82915	.67476	.83046	.67681	.83177	.67884	.83307	.68088	10
51	.82785	.67275	.82917	.67480	.83049	.67684	.83179	.67888	.83309	.68091	$\frac{9}{2}$
+ 13′	9.82788	.67279	9.82920	.67483	9.83051	.67687	9.83181	.67891	9.83311	.68095 .68098	8
53 54	.82790 .82792	.67282 .67285	.82922 .82924	.67487 .67490	.83053 .83055	.67691 .67694	.83184 .83186	.67895 .67898	.83314	.68102	7 6
55 55	.82794	.67289	.82926	.67493	.83055	.67698	.83188	.67901	.83318	.68105	5
+ 14'	9.82796	.67292	9.82928	.67497	9.83059	.57701	9.83190	.67905	9.83320	.68108	4
57	.82799	.67296	.82930	.67500	.83062	.67704	.83192	.67908	.83322	.68112	3
5 8	.82801	.67299	.82933	.67504	.83064	.67708	.83194	.67912	.83324	.68115	2
59	.82803	.67302	.82935	.67507	.83066	.67711	.83197	.67915	.83327	.68119	1
+ 15'	9.82805	.67306	9.82937	.67510	9.83068	.67715	9.83199	.67918	9.83329	.68122	0
	16h 39m		16h 38m		16h	16h 37m		16h 36m		16h 35m	
	10.00		1 1								

	7h 25m 111° 15'		7h 26m 111° 30′		7h 27m 111° 45'		7h 28m 112° 0′		7h 29m 112° 15′		
s		Nat. Hav.				Nat. Hav.					s
0	9.83329	.68122	9.83458	.68325	9.83587	.68528	9.83715	.68730	9.83842	.68932	60
1	.83331	.68125	.83460	.68328	.83589	.68531	.83717	.68734	.83844	.68936	59
2	.83333	.68129	.83462	.68332	.83591	.68535	.83719	.68737	.83847	.68939	58
+ 1'	.83335 9.83337	.68132 .68135	$\frac{.83464}{9.83467}$.68335 .68339	$\frac{.83593}{9.83595}$.68538	$\frac{.83721}{9.83723}$.68740	$\frac{.83849}{9.83851}$.68943	$\frac{57}{56}$
5	.83339	.68139	.83469	.68342	.83597	.68545	.83725	.68747	.83853	.68949	55
6	.83342	.68142	.83471	.68345	.83600	.68548	.83728	.68751	.83855	.68953	54
$\frac{\gamma}{+2^{\prime}}$	$\frac{.83344}{9.83346}$.68146 .68149	$\frac{.83473}{9.83475}$.68349	$\frac{.83602}{9.83604}$.68552	$\frac{.83730}{9.83732}$.68754	$\frac{.83857}{9.83859}$.68956 .68959	$\frac{53}{52}$
+ °	.83348	.68152	.83477	.68356	.83606	.68558	.83734	.68761	.83861	.68963	51
10	.83350	.68156	.83480	.68359	.83608	.68562	.83736	.68764	.83864	.68966	50
$\frac{11}{+3'}$.83352 9.83355	.68159	$\frac{.83482}{9.83484}$	-68362 -68366	$\frac{.83610}{9.83612}$.68565 .68568	$\frac{.83738}{9.83740}$.68767	$\frac{.83866}{9.83868}$.68969	49
13	,83357	.68166	.83486	.68369	.83615	.68572	.83743	.68774	.83870	.68976	47
14	.83359	.68169	.83488	.68372	.83617	.68575	.83745	.68778	.83872	.68980	46
15	.83361	.68173	.83490	.68376	.83619	.68579	.83747	.68781	.83874	.68983	45
+ 4'	9.83363 .83365	.68176 .68180	9.83492 .83495	.68379 .68383	$9.83621 \\ .83623$.68582 .68585	9.83749	.68784	9.83876 .83878	.68986 .68990	44 43
18	.83368	.68183	.83497	.68386	.83625	.68589	.83753	.68791	.83881	.68993	42
19	.83370	.68186	.83499	.68389	.83627	.68592	.83755	.68794	.83883	.68996	41
+ 5'	9.83372	.68190 .68193	9.83501	.68393 .68396	$9.83630 \\ .83632$.68595 .68599	9.83757 .83760	.68798 .68801	9.83885 .83887	.69000 .69003	40 39
22	.83376	.68196	.83505	.68399	.83634	.68602	.83762	.68804	.83889	.69006	38
23	.83378	.68200	.83507	.68403	.83636	.68606	.83764	.68808	.83891	.69010	37
+ 6'	9.83380 .83383	.68203	$9.83510 \\ .83512$.68406 .68410	$9.83638 \\ .83640$.68609 .68612	9.83766 .83768	.68811 .68815	9.83893 .83895	.69013	36 35
26	.83385	.68210	.83514	.68413	.83642	.68616	.83770	.68818	.83897	.69020	34
27	.83387	.68213	.83516	.68416	.83644	.68619	.83772	.68821	.83900	.69023	33
+ 7'	9.83389	.68217	9.83518	.68420 .68423	9.83647	.68622 .68626	9.83774	.68825	9.83902 .83904	.69027 .69030	32
29 30	.83391 .83393	.68220 .68224	.83520 .83522	.68427	.83649 .83651	.68629	.83777 .83779	.68828 .68831	.83904	.69033	31
31	.83396	.68227	.83525	.68430	.83653	.68633	.83781	.68835	.83908	.69037	29
+ 8'	9.83398	.68230	9.83527	.68433	9.83655	.68636	9.83783	.68838	9.82910	.69040	28
33 34	.83400 .83402	.68234	.83529 .83531	.68437	.83657 .83659	.68639 .68643	.83785 .83787	.68842 .68845	.83912 .83914	.69044	27 26
35	.83404	.68240	.83533	.68443	.83662	.68646	.83789	.68848	.83916	.69050	
+ 9'	9.83406	.68244	9.83535	.68447	9.83664		9.83791	.68852		.69054	24
37 38	.83409 .83411	.68247	.83537 .83540	.68450 .68454	.83666 .83668	.68653 .68656	.83794 .83796	.68855 .68858	.83921 .83923	.69057 .69060	23
39	.83413	.68254	.83542	.68457	.83670		.83798	.68862	.83925	.69064	21
+ 10'	9.83415	.68257	9.83544	.68460	9.83672	.68663	9.83800	.68865		.69067	20
41 42	.83417	.68261	.83546 .83548	.68464	.83674 .83676	.68666	.83802 .83804	.68869 .68872	.83929	.69070 .69074	
43	.83421	.68268	.83550	.68470	.83679	.68673	.83806	.68875	.83933	.69077	17
+ 11'	9.83424	.68271	9.83552	.68474	9.83681	.68676	9.83808	.68879	9.83935	.69080	
45 46	.83426 .83428	.68274 .68278	.83555 .83557	.68477 .68481	.83683 .83685	.68680 .68683	.83811 .83813	.68892 .68885	.83938 .83940	.69084	15 14
47	.83430	.68281	.83559	.68484	.83687	.68687	.83815	.68889	.83942	.69091	13
+ 12'	9.83432	.68284	9.83561	.68487	9.83689		9.83817	.68892	9.83944	.69094	
49 50	.83434	.68288	.83563	.68491 .68494	.83691 .83694		.83819		.83946	.69097 .69101	11
50 51	.83436 .83439	.68291	.83565 .83567	.68497	.83696	.68697	.83821 .83823	.68899	.83948	.69104	
+ 13'	9.83441	.68298	9.83570	.68501	9.83698	.68703		.68906	9.83952	.69107	8
53	.83443	.68301	.83572	.68504	.83700		.83828	.68909	.83955	.69111	
54 55	.83445 .83447	.68305 .68308	.83574 .83576	.68508 .68511	.83702 .83704		.83830 .83832	.68912 .68916	.83957 .83959	.69114	6 5
+ 14'	9.83449	.68312	9.83578	.68515	9.83706	.68717	9.83834	.68919	9.83961	.69121	4
57	.83452	.68315	.83580	.68518	.83708		.83836	.68922	.83963	.69124	3
58 59	.83454 .83456	.68318	.83582 .83585	.68521 .68525	.83711 .83713		.83838 .83840	.68926 .58929	.83965 .83967	.69127	2
+ 15'	9.83458	.68325	9.83587	.68528	9.83715			.68932	9.83969	.69134	0
	16h 34m		16%	. 33m	16	16h 32m		16h 31m		16h 30m	
	10.04		1 20.00		10" 32"		20. 02		1000		1

	7h 30m	112° 30′	7h 31m	112° 45′	7h 32m	113° 9′	7h 33m	113° 15′	7h 34m	113° 30′	
S	Log. Hav.		Log. Hav.					Nat, Hav.		Nat. Hav.	s
0	9.83969	.69134	9.84096	.69336	9.84221	.69537	9.84346	.69737	9.84471	.69937	60
1	.83971	.69138	.84098	.69339	.84223	.69540	.84349	.69741	.84473	.69941	59
2	.83974	.69141 .69144	.84100 .84102	.69342 .69346	.84226 .84228	.69543 .69547	.84351 .84353	.69744	.84475 .84477	.69944	58 57
+ 1'	9.83978	.69148	9.84104	.69349	9.84230	.69550	9.84355	.69751	9.84479	.69951	56
5	.83980	.69151	.84106	.69352	.84232	.69553	.84357	.69754	.84481	.69954	5.5
$\frac{6}{7}$.83982 .83984	.69154 .69158	.84108 .84110	.69356 .69359	.84234	.69557 .69560	.84359	.69757 .69761	.84483 .84485	.69957 .69961	54 53
+ 2'	9.83986	.69161	9.84112	.69362	9.84238	.69563	9.84363	.69764	9.84488	.69964	52
9	.83988	.69164	.84114 .84117	.69366 .69369	.84240 .84242	.69567	.84365 .84367	.69767 .69771	.84490	.69967 .69971	51
10 11	.83990	.69168 .69171	.84119	.69372	.84244	.69570	.84369	.69774	.84492 .84494	.69974	50 49
+ 3'	9.83995	.69174	9.84121	.69376	9.84246	.69577	9.84371	.69777	9.84496	.69977	48
13	.83997	.69178 .69181	.84123 .84125	.69379 .69382	.84248 .84251	.69580 .69583	.84373 .84376	.69781 .69784	.84498 .84500	.69981 .69984	47
14 15	.83999	.69185	.84127	.69386	.84253	.69587	.84378	.69787	.84502	.69987	46 45
+ 4'	9.84003	.69188	9.84129	.69389	9.84255	.69590	9.84380	.69791	9.84504	.69991	44
17 18	.84005 .84007	.69191 .69195	.84131 .84133	.69393 .69396	.84257 .84259	.69593	.84382 .84384	.69794	.84506 .84508	.69994	43
19	.84009	.69198	.84135	.69399	.84261	.69600	.84386	.69801	.84510	.70001	41
+ 5'	9.84011	.69201	9.84138	.69403	9.84263	.69603	9.84388	.69804	9.84512	.70004	40
21 22	.84014 .84016	.69205 .69208	.84140 .84142	.69406 .69409	.84265 .84267	.69607 .69610	.84390 .84392	.69807 .69811	.84514 .84517	.70007	39 38
23	.84018	.69211	.84144	.69413	.84269	.69614	.84394	.69814	.84519	.70014	37
+ 6'	9.84020	.69215	9.84146	.69416	9.84271	.69617	9.84396	.69817	9.84521	.70017	36
25 26	.84022 .84024	.69218 .69221	.84148 .84150	.69419 .69423	.84274 .84276	.69620	.84398 .84400	.69821	.84523 .84525	.70021	35 34
27	.84026	.69225	.84152	.69426	.84278	.69627	.84403	.69827	.84527	.70027	33
+ 7'	9.84028	.69228	9.84154	.69429	9.84280	.69630	9.84405	.69831	9.84529	.70031	32
29 30	.84030 .84033	.69232 .69235	.84156 .84159	.69433 .69436	.84282 .84284	.69634 .69637	.84407 .84409	.69834 .69837	.84531 .84533	.70034 .70037	31
31	.84035	.69238	.84161	.69439	.84286	.69640	.84411	.69841	.84535	.70041	29
+ 8'	9.84037	.69242	9.84163	.69443	9.84288	.69644	9.84413	.69844	9.84537	.70044	28
33 34	.84039 .84041	.69245 .69248	.84165 .84167	.69446 .69450	.84290 .84292	.69647	.84415 .84417	.69847	.84539 .84541	.70047	27 26
35	.84043	.69252	.84169	.69453	.84294	.69654	.84419	.69854	.84543	.70054	25
+ 9'	9.84045	.69255	9.84171	.69456	9.84296	.69657	9.84421	.69857	9.84545	.70057	24
37 38	.84047 .84049	.69258	.84173 .84175	.69460	.84299 .84301	.69660 .69664	.84423	.69861 .69864	.84547 .84550	.70061	23
39	.84051	.69265	.84177	.69466	.84303	.69667	.84427	.69867	.84552	.70067	21
+ 10'	9.84054	.69268	9.84179	.69470	9.84305	.69670	9.84430	.69871	9.84554	.70071	20
41 42	.84056 .84058	.69272	.84182 .84184	.69473 .69476	.84307 .84309	.69674	.84432 .84434	.69874 .69877	.84556 .84558	.70074	19 18
43	.84060	.69279	.84186	.69480	.84311	.69680	.84436	.69881	.84560	.70081	17
+ 11'	9.84062	.69282	9.84188	.69483	9.84313	.69684	9.84438	.69884	9.84562	.70084	16
45 46	.84064	.69285	.84190 .84192	.69486 .69490	.84315 .84317	.69687	.84440 .84442	.69887	.84564 .84566	.70087	15 14
47	.84068	.69292	.84194	.69493	.84319	.69694	.84444	.69894	.84568	.70094	13
+ 12'	9.84070	.69295	9.84196	.69496	9.84321	.69697	9.84446	.69897	9.84570	.70097	12
49 50	.84072 .84075	.69299 .69302	.84198 .84200	.69500 .69503	.84324 .84326	.69700 .69704	.84448 .84450	.69901 .69904	.84572 .84574	.70101	11 10
51	.84077	.69305	.84203	.69506	.84328	.69707	.84452	.69907	.84576	.70107	9
+ 13'	9.84079	.69309	9.84205	.69510	9.84330	.69710	9.84454	.69911	9.84578	.70111	8
53 54	.84081 .84083	.69312	.84207 .84209	.69513 .69516	.84332 .84334	.69714	.84456 .84459	.69914 .69917	.84581 .84583	.70114	6
55	.84085	.69319	.84211	.69520	.84336	.69720	.84461	.69921	.84585	.70121	5
+ 14'	9.84087	.69322	9.84213	.69523	9.84338	.69724	9.84463	.69924	9.84587	.70124	4
57 58	.84089 .84091	.69326 .69329	.84215 .84217	.69527 .69530	.84340 .84342	.69727 .69731	.84465 .84467	.69927 .69931	.84589 .84591	.70127	3 2
59	.84093	.69332	.84219	.69533	.84344	.69734	.84469	.69934	.84593	.70134	1
+ 15'	9.84096	.69336	9.84221	.69537	9.84346	.69737	9.84471	.69937	9.84595	.70137	0
	16h	29m	16h	28m	16h	271n	16h	26m	16h	25m	
	•		<u> </u>				-				

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TABLE 45.

s 0 1 2 3 + 1'	Log. Hav. 9.84595 .84597 .84599	Nat. Hav.	Log. Hav.	Not Her							1
1 2 3	.84597	70127		Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
2 3			9.84718	.70337	9.84841	.70536	9.84963	.70735	9.85085	.70933	60
3		.70141 .70144	.84720 .84722	.70340 .70343	.84843 .84845	.70539 .70543	.84965 $.84967$.70738 .70741	.85087 .85089	.70936 .70940	59 58
+ 1/	.84601	.70147	.84724	.70347	.84847	.70546	.84969	.70745	.85091	.70943	57
' .	9.84603	.70151	9.84726	.70350	9.84849	.70549	9.84971	.70748	9.85093	.70946	56
$\frac{5}{6}$.84605 .84607	.70154 .70157	.84729 .84731	.70353 .70357	.84851 .84853	.70553 .70556	.84973 .84975	.70751 .70755	.85095 .85097	.70950 .70953	55 54
7	.84609	.70161	.84733	.70360	.84855	.70559	.84977	.70758	.85099	.70956	53
+ 2'	9.84611 $.84613$.70164 .70167	9.84735 .84737	.70363 .70367	9.84857	.70562 .70566	9.84979 .84982	.70761 .70764	9.85101 .85103	.70959 .70963	52 51
10	.84616	.70171	.84739	.70370	.84861	.70569	.84984	.70768	.85105	.70966	50
11	.84618	.70174	.84741	.70373	.84863	.70572	.84986	.70771	.85107	.70969	49
$+_{13}^{3'}$	$9.84620 \\ .84622$.70177 .70181	9.84743	.70377 .70380	9.84866	.70576 .70579	9.84988 .8499 0	.70774 .70778	9.85109 $.85111$.70973 .70976	48 47
14	.84624	.70184	.84747	.70383	.84870	.70582	.84992	.70781	.85113	.70979	46
$\frac{15}{+4'}$.84626	.70187	.84749	.70387	.84872 9.84874	.70586	.84994	.70784	.85115	.70983	$\frac{45}{11}$
+ 4'	9.84628 .84630	.70191 .70194	9.84751 .84753	.70390 .70393	.84876	.70592	9.84996 .84998	.70791	9.8 51 17 .8 51 19	.70986 .70989	44 43
18	.84632	.70197	.84755	.70397	.84878	.70596	.85000	.70794	.85121	.70992	42
$\frac{19}{+5'}$	$\frac{.84634}{9.84636}$.70201 .70204	$\frac{.84757}{9.84759}$.70400 .70403	$\frac{.84880}{9.84882}$.70599	$\frac{.85002}{9.85004}$.70798	$\frac{.85123}{9.85125}$.70996	$\frac{41}{40}$
21	.84638	.70207	.84761	.70407	.84884	.70606	.85004	.70804	.85127	.71002	39
22	.84640	.70211	.84763	.70410	.84886	.70609	.85008	.70807	.85129	.71006	38
$\frac{23}{+6'}$	$\frac{.84642}{9.84644}$.70214	$\frac{.84765}{9.84767}$.70413	$\frac{.84888}{9.84890}$.70612	$\frac{.85010}{9.85012}$.70811	$\frac{.85131}{9.85133}$.71009	37
25	.84646	.70221	.84770	.70420	.84892	.70619	.85014	.70817	.85135	.71016	35
26 27	.84648 $.84651$.70224 .70227	.84772 .84774	.70423 .70426	.84894 .84896	.70622 .70625	.85016 .85018	.70821 .70824	.85137 .85139	.71019 .71022	34
+ 7	9.84653	.70230	9.84776	.70430	9.84898	.70629	9.85020	.70827	9.85141	.71025	32
29	.84655	.70234	.84778	.70433	.84900	.70632	.85022	.70831	.85143	.71029	31
30 31	.84657 $.84659$.70237 .70240	.84780 .84782	.70436 .70440	.84902 .84904	.70635	.85024 .85026	.70834	.85145 .85147	.71032 .71035	30 29
+ 8'	9.84661	.70244	9.84784	.70443	9.84906	.70642	9.85028	.70840	9.85149	.71039	28
33	.84663	.70247	.84786	.70446	.84908	.70645 .70649	.85030	.70844	.85151	.71042 .71045	27
34 35	.84665 .84667	.70250 .70254	.84788 .84790	.70450 .70453	.84910 .84912	.70652	.85032 .85034	.70847 .70850	.85153 .85155	.71049	26 25
+ 9'	9.84669	.70257	9.84792	.70456	9.84914	.70655	9.85036	.70854	9.85158	.71052	24
37 38	.84671	.70260 .70264	.84794 .84796	.70460 .70463	.84916 .84919	.70659 .70662	.85038 .85040	.70857 .70860	.85160 .85162	.71055 .71058	23
39	.84675	.70267	.84798	.70466	.84921	.70665	.85042	.70864	.85164	.71062	21
+ 10′	9.84677	.70270	9.84800	.70470	9.84923	.70668	9.85044	.70867	9.85166	.71065	20
41 42	.84679 .84681	.70274	.84802 .848 0 4	.70473	.84925 .84927	.70672	.85046 .85048	.70870	.85168 .85170	.71068	19 18
43	.84683	.70280	.84806	.70480	.84929	.70678	.85050	.70877	.85172	.71075	17
+ 11'	9.84685	.70284 .70287	9.84808 .84810	.70483 .70486	9.84931 .84933	.70682	9.85052 $.85054$.70880 .70884	$9.85174 \\ .85176$.71078 .71082	16 15
45 46	.84688 .84690	.70290	.84812	.70490	.84935	.70685	.85057	.70887	.85178	.71085	14
47	.84692	.70294	.84815	.70493	.84937	.70692	.85059	.70890	.85180	.71088	13
+ 12 ′	9.84694 .84696	.70297 .70300	9.84817 .84819	.70496 .70499	9.84939 .84941	.70695 .70698	9.85061	.70893 .70897	$9.85182 \\ .85184$.71091 .71095	12 11
50	.84698	.70304	.84821	.70503	.84943	.70702	.85065	.70900	.85186	.71098	10
51	.84700	.70307	.84823	.70506	.84945	.70705	.85067	.70903	.85188	.71101	9
+ 13' 53	9.84702	.70310 .70314	$9.84825 \\ .84827$.70509 .70513	9.84947 .84949	.70708 .70712	9.85069 .85071	.70907 .70910	$9.85190 \\ .85192$.71105 .71108	8 7
54	.84706	.70317	.84829	.70516	.84951	.70715	.85073	.70913	.85, 94	.71111	6
+ 14'	.84708 9.84710	.70320	.84831 9.84833	.70519	.84953 9.84955	.70718	$\frac{.85075}{9.85077}$.70916	$\frac{.85196}{9.85198}$.71114	5
57	.84712	.70327	.84835	.70526	.84957	.70725	.85079	.70923	.85200	.71121	3
58 50	.84714	.70330 .70333	.84837 .84839	.70529 .70533	.84959	.70729 .70731	.85081	.70926 .70930	.85202 .85204	.71124 .71128	2
$\frac{59}{+ 15'}$.84716 9.84718	.70337	9.84841	.70536	$\frac{.84961}{9.84963}$.70735	.85083 9.85085	.70933	$\frac{.85204}{9.85206}$.71131	$\frac{1}{0}$
,		<u> </u>				1				1	
	16h	24m	16h	23m	16h	22m	16h	21m	16h	20m	

					Haversii	165.					
	7h 40m	115° 0′	7h 41m	115° 15′	7h 42m	115° 30′	7h 43m	115° 45′	7h 44m	116° 0′	
s	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat, Hav.	S
0	9.85206	.71131	9.85326	.71328	9.85446	.71526	9.85565	.71722	9.85684	.71919	60
1	.85208	.71134	.85328	.71332	.85448	.71529	.85567	.71726	.85686	.71922	59
2 3	.85210 .85212	.71138 .71141	.85330 .85332	.71335 .71338	.85450 .85452	.71532 .71535	.85569 .85571	.71729 .71732	.85688 .85690	.71925 .71928	58 57
+ 1'	9.85214	.71144	9.85334	.71342	9.85454	.71539	9.85573	.71735	$\frac{.85690}{9.85692}$.71932	56
5	.85216	.71147	.85336	.71345	.85456	.71542	.85575	.71739	.85694	.71935	55
6	.85218	.71151	.85338	.71348	.85458	.71545	.85577	.71742	.85696	.71938	54
7	.85220	.71154	.85340	.71351	.85460	.71549	.85579	.71745	.85698	.71941	53
+ 2'	9.85222	.71157	9.85342	.71355	9.85462	.71552	9.85581	.71748	9.85700	.71945	52
9 10	.85224 .85226	.71161 .71164	.85344 .85346	.71358 .71361	.85464 .85466	.71555 .71558	.85583 .85585	.71752 .71755	.85702 .85704	.71948 .71951	51 50
11	.85228	.71167	.85348	.71365	.85468	.71562	.85587	.71758	.85706	.71955	49
+3'	9.85230	.71170	9.85350	.71368	9.85470	.71565	9.85589	.71762	9.85708	.71958	48
13	.85232	.71174	.85352	.71371	.85472	.71568	.85591	.71765	.85710	.71961	47
14	.85234	.71177	.85354	.71374	.85474	.71571	.85593	.71768	.85712	.71964	46
15	.85236	.71180	.85356	.71378	.85476	.71575	.85595	.71771	.85714	.71968	45
+ 4'	$9.85238 \\ .85240$.71184 .71187	9.85358 .85360	.71381 .71384	9.85478 .85480	.71578 .71581	9.85597 .85599	.71775 .71778	9.85716 .85718	.71971 .71974	44 43
18	.85242	.71190	.85362	.71388	.85482	.71585	.85601	.71781	.85720	.71977	42
19	.85244	.71194	.85364	.71391	.85484	.71588	.85603	.71784	.85722	.71981	41
+ 5'	9.85246	.71197	9.85366	.71394	9.85486	.71591	9.85605	.71788	9.85724	.71984	40
21	.85248	.71200	.85368	.71397	.85488	.71594	.85607	.71791	.85726	.71987	39
22 23	.85250 .85252	.71203 .71207	.85370 .85372	.71401 .71404	.85490 .85492	.71598 .71601	.85609 .85611	.71794	.85727 $.85729$.71990 .71994	38 37
+ 6'	9.85254	.71210	$\frac{0.85372}{9.85374}$.71407	9.85494	.71604	9.85613	.71801	$\frac{0.85723}{9.85731}$.71997	36
25	.85256	.71213	.85376	.71411	.85496	.71608	.85615	.71804	.85733	.72000	35
26	.85258	.71217	.85378	.71414	.85498	.71611	.85617	.71807	.85735	.72003	34
27	.85260	.71220	.85380	.71417	.85500	.71614	.85619	.71811	.85737	.72007	33
+ 7'	$9.85262 \\ .85264$.71223 .71226	9.85382 .85384	.71420 .71424	9.85502 $.85504$.71617 .71621	9.85621 .85623	.71814	9.85739 .85741	.72010	32 31
30	.85266	.71230	.85386	.71427	.85506	.71624	.85625	71829	.85743	.72017	30
31	.85268	.71233	.85388	.71430	.85508	.71627	.85627	.71824	.85745	.72020	29
+ 8'	9.85270	.71236	9.85390	.71434	9.85510	.71631	9.85629	.71827	9.85747	.72023	28
33	.85272	.71240	.85392	.71437	.85512	.71634	.85631	.71830	.85749	.72026	27
34 35	.85274 $.85276$.71243 .71246	.85394 .85396	.71440 .71443	.85514 .85516	.71637 .71640	.85633 .85635	.71834 .71837	.85751 .85753	.72030 .72033	26 25
+ 9'	9.85278	.71249	9.85398	.71447	$\frac{0.85518}{9.85518}$.71644	9.85637	.71840	9.85755	.72036	24
37	.85280	.71253	.85400	.71450	.85520	.71647	.85639	.71843	.85757	.72039	23
38	.85282	.71256	.85402	.71453	.85522	.71650	.85641	.71847	.85759	.72043	22
39	.85284	.71259	.85404	.71456	.85524	.71653	.85643	.71850	.85761	.72046	21
+ 10'	9.85286	.71263	$9.85406 \\ .85408$.71460 .71463	9.85526	.71657	9.85645 .85647	.71853 .71856	9.85763	.72049 .72052	20 19
41 42	.85288 .85290	.71266 .71269	.85410	.71466	.85528 .85530	.71660	.85649	.71860	.85765 .85767	.72056	18
43	.85292	.71273	.85412	.71470	.85532	.71667	.85651	.71863	.85769	.72059	17
+ 11'	9.85294	.71276	9.85414	.71473	9.85534	.71670	9.85653	.71866	9.85771	.72062	16
45	.85296	.71279	.85416	.71476	.85536	.71673	.85654	.71870	.85773	.72066	15
46 47	.85298 .85300	.71282 .71286	.85418 .85420	.71480 .71483	.85538 .85540	.71676 .71680	.85656 .85658	.71873 .71876	.85775 .85777	.72069	14 13
$\frac{47}{+12'}$	$\frac{.85300}{9.85302}$.71289	$\frac{.85420}{9.85422}$.71486	$\frac{.85540}{9.85542}$.71683		.71879	$\frac{.85777}{9.85779}$.72075	12
49	.85304	.71292	.85424	.71489	.85544	.71686	.85662	.71883	.85781	.72079	11
50	.85306	.71296	.85426	.71493	.85546	.71690	.85664	.71886	.85783	.72082	10
51	.85308	.71299	.85428	.71496	.85548	.71693	.85666	.71889	.85785	.72085	$\frac{9}{2}$
+ 13'	$9.85310 \\ .85312$.71302 .71305	$9.85430 \\ .85432$.71499 .71503	$9.85550 \\ .85552$.71696 .71699	9.85668 .85670	.71892 .71896	9.85787 .85788	.72088 .72092	8
53 54	.85314	.71309	.85434	.71506	.85554	.71703	.85672	.71899	.85790	.72095	6
55	.85316	.71312	.85436	.71509	.85555	.71706	.85674	.71902	.85792	.72098	5
+ 14'	9.85318	.71315	9.85438	.71512	9.85557	.71709	9.85676	.71905	9.85794	.72101	4
57	.85320	.71319	.85440	.71516	.85559	.71712	.85678	.71909	.85796	.72105	3
58 59	.85322 .85324	.71322	.85442 .85444	.71519	.85561 .85563	.71716	.85680 .85682	.71912 .71915	.85798 .85800	.72108 .72111	2 1
+ 15'	9.85326	.71328	9.85446	.71526	$\frac{.85565}{9.85565}$.71722	9.85684	.71919	9.85802	.72114	0
		19m		18m		17m		16m		15m	
	10%	13	10%	10	10%	11	10%	10	10.0	10	

TABLE 45.

8	ml	1400 42/	Nh iam	1460 00/	l ~h .~-	1160 471	Wh tom	11%0 A/	Wh 10=	4400 471	-
	7h 45m		7h 46m			116° 45′	7h 48m			117° 15′	
		Nat. Hav.	Log. Hav.				Log. Hav.		Log. Hav.		s
0	9.85802 .85804	.72114 .72118	$9.85920 \\ .85922$.72310 .72313	9.86037	.72505	$9.86153 \\ .86155$.72700 .72703	9.86269	.72894	60
1 2	.85804	.72121	.85924	.72316	.86039 .86041	.72508 .72511	.86155	.72706	.86271 $.86273$.72897	59 58
3	.85808	.72124	.85926	.72320	.86043	.72515	.86159	.72709	.86275	.72903	57
+ 1′	9.85810	.72127	9.85928	.72323	9.86045	.72518	9.86161	.72712	9.86277	.72907	56
5 6	.85812 .85814	.72131 .72134	.85930 .85931	.72326 .72329	.86046 .86048	.72521 .72524	.86163 .86165	.72716 .72719	.86279 .86281	.72910 .72913	55 54
7	.85816	.72137	.85933	.72333	.86050	.72528	.86167	72722	.86282	.72916	53
+ 2'	9.85818	.72141	9.85935	.72336	9.86052	.72531	9.86169	.72725	9.86284	.72920	52
9	.85820	.72144	.85937	.72339	.86054	.72534	.86171	.72729	.86286	.72923	51
10 11	.85822 .85824	.72147 .72150	.85939 .85941	.72342 .72346	.86056 .86058	.72537 .72541	.86173 .86174	.72732 .72735	.86288 .86290	.72926	50 49
+ 3'	9.85826	.72154	9.85943	.72349	9.86060	.72544	9.86176	.72738	9.86292	.72932	48
13	.85828	.72157	.85945	.72352	.86062	.72547	.86178	.72742	.86294	.72936	47
14 15	.85830 .85832	.72160 .72163	.85947 .85949	.72355 .72359	.86064 .86066	.72550	.86180 .86182	.72745	.86296 $.86298$.72939	46 45
+ 4'	9.85834	.72167	9.85951	.72362	9.86068	.72557	9.86184	.72751	9.86300	.72945	44
17	.85836	.72170	.85953	.72365	.86070	.72560	.86186	.72755	.86302	.72949	43
18	.85838	.72173	.85955	.72368	.86072	.72563	.86188	.72758	.86304	.72953	42
$\frac{19}{+5'}$	$\frac{.85840}{9.85841}$.72176 .72180	$\frac{.85957}{9.85959}$.72372	$\frac{.86074}{9.86076}$.72567	$\frac{.86190}{9.86192}$.72761	.86306 9.86307	.72955	41
21	.85843	.72183	.85961	.72378	.86078	.72573	.86194	.72768	.86309	.72962	39
22	.85845	.72186	.85963	.72381	.86080	.72576	.86196	.72771	.86311	.72965	38
$\frac{23}{+6'}$.85847	.72189	.85965	.72385	.86081	.72580	.86198	.72774	.86313	.72968	37
+ 6' 25	9.85849 .85851	.72193 .72196	9.85967 .85969	.72388 .72391	9.86083 .86085	.72583 .72586	$9.86200 \\ .86201$.72777 .72780	$9.86315 \\ .86317$.72971	36 35
26	.85853	.72199	.85971	.72394	.86087	.72589	.86203	.72784	.86319	.72978	34
27	.85855	.72202	.85972	.72398	.86089	.72593	.86205	.72787	.86321	.72981	33
+ 7'	9.85857 $.85859$.72206 .72209	9.85974 .85976	.72401 .72404	9.86091 .86093	.72596 .72599	9.86207 .86209	.72790 .72793	9.86323 $.86325$.72984	32 31
30	.85861	.72212	.85978	.72407	.86095	.72602	.86211	.72797	.86327	.72991	30
31	.85863	.72215	.85980	.72411	.86097	.72606	.86213	.72800	.86329	.72994	29
$+ \frac{8}{33}$	9.85865	.72219 .72222	9.85982 .85984	.72414	9.86099 .86101	.72609	9.86215	.72803	9.86331	.72997	28
. 33	.85867 .85869	.72225	.85986	.72420	.86103	.72612 .72615	.86217 .86219	.72806 .72810	.86332 .86334	.73000 .73004	27 26
35	.85871	.72229	.85988	.72424	.86105	.72618	.86221	.72813	.86336	.73007	25
+ 9'	9.85873	.72232	9.85990	.72427	9.86107	.72622	9.86223	.72816	9.86338	.73010	24
37 38	.85875 .85877	.72235 .72238	.85992 .85994	.72430 .72433	.86109 .86111	.72625 .72628	.86225 $.86227$.72819 .72823	.86340 .86342	.73013	23
39	.85879	.72242	.85996	.72437	.86112	.72631	.86229	.72826	.86344	.73020	21
+ 10'	9.85881	.72245	9.85998	.72440	9.86114	.72635	9.86230	.72829	9.86346	.73023	20
41 42	.85883 .85885	.72248	.86000 .86002	.72443	.86116 .86118	.72638 .72641	.86232	.72832	.86348 .86350	.73026	19 18
43	.85887	.72255	.86002	.72450	.86120	.72644	.86234 .86236	.72835 .72839	.86352	73033	17
+ 11'	9.85888	.72258	9.86006	.72453	9.86122	.72648	9.86238	.72842	9.86354	.73036	16
45 46	.85890	.72261	.86008	.72456	.86124	.72651	.86240	.72845	.86355	.73039	15
46 47	.85892 .85894	.72264	.86010 .86011	.72459 .72463	.86126 .86128	.72654	.86242 .86244	.72848 .72852	.86357 .86359	.73042	14 13
+ 12'	9.85896	.72271	9.86013	.72466	9.86130	.72661	9.86246	.72855	9.86361	.73049	12
49	.85898	.72274	.86015	.72469	.86132	.72664	.86248	.72858	.86363	.73052	11
50 51	.85900 .85902	.72277	.86017 .86019	.72472 72476	.86134 .86136	.72667	.86250 $.86252$.72861 .72865	.86365 .86367	.73055	10
+ 13'	9.85904	.72284	9.86021	.72479	9.86138	.72674	9.86254	.72868	9.86369	.73062	8
53	.85906	.72287	.86023	.72482	.86140	.72677	.86256	.72871	.86371	.73065	7
54 55	.85908 .85910	.72290	.86025	.72485	.86142	.72680	.86257	.72874	.86373	.73068	6
+ 14'	$\frac{.85910}{9.85912}$.72297	$\frac{.86027}{9.86029}$.72489	$\frac{.86143}{9.86145}$.72683	$\frac{.86259}{9.86261}$.72878	$\frac{.86375}{9.86377}$.73071	5
57	.85914	.72300	.86031	.72495	.86147	.72690	.86263	.72884	.86379	.73078	3
58 59	.85916	.72303	.86033	.72498	.86149	.72693	.86265	.72887	.86380	.73081	2
$\frac{-39}{+15'}$	$\frac{.85918}{9.85920}$	72307	$\frac{.86035}{9.86037}$.72502	$\frac{.86151}{9.86153}$.72696	$\frac{.86267}{9.86269}$.72890	$\frac{.86382}{9.86384}$.73084	$\frac{1}{0}$
1 ' 10	l			<u> </u>						·	U
	16h	14^m	16h	13m	16h	12m	16h	11m	16h	10m	

	7h 50m	117° 30′	7h 51m	117° 45′	7h 52m	118° 0′	7h 53m	118° 15′	7h 54m	118° 30′	
S	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav	. Nat. Hav	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	9.86384	.73087	9.86499	.73281	9.86613	.73474	9.86727 $.86729$.73666	9.86840	.73858	60
1 2	.86386 .86388	.73091 .73094	.86501 .86503	.73284 .73287	.86615 .86617	.73477	.86730	.73669 .73672	.86842 .86843	.73861 .73864	59 58
3	.86390	.73097	.86505	.73290	.86619	73483	.86732	.73676	.86845	73868	57
+ 1'	9.86392	.73100	9.86507	.73294	9.86621	.73486	9.86734	.73679	9.86847	.73871	56
5	.86394	.73104	.86509	.73297	.86623	.73490	.86736	.73682	.86849	.73874	55
6	.86396	.73107	.86510	.73300 .73303	.86625	.73493 .73496	.86738	.73685 .73688	.86851 .86853	.73877 .73880	54 53
+ 2/	.86398 9.86400	.73110 .73113	$\frac{.86512}{9.86514}$.73306	$\frac{.86626}{9.86628}$.73499	$\frac{.86740}{9.86742}$.73692	9.86855	.73884	52
9"	.86401	.73116	.86516	.73310	.86630	.73502	.86744	.73695	.86857	.73887	51
10	.86403	.73120	.86518	.73313	.86632	.73506	.86746	.73698	.86859	.73890	50
11	.86405	.73123	.86520	.73316	.86654	.73509	.86747	.73701	.86860	.73893	49
+ 3'	9.86407 .86409	.73126 .73129	9.86522 $.86524$.73319 .73323	9.86636 .86638	.73512	9.86749 .86751	.73704	9.86862 $.86864$.73896 .73899	48 47
14	.86411	.73133	.86526	.73326	.86640	.73519	.86753	.73711	.86866	.73903	46
15	.86413	.73136	.86528	.73329	.86642	.73522	.86755	.73714	.86868	.73906	45
+ 4'	9.86415	.73139	9.86529	.73332	9.86643	.73525	9.86757	.73717	9.86870	.73909	44
17 18	.86417	.73142	.86531	.73335 .73339	.86645 .86647	.73528	.86759 .86761	.73720	.86872 .86874	.73912	43 42
18 19	.86419 $.86421$.73145	.86533 .86535	.73342	.86649	.73535	.86763	.73727	.86875	.73919	42
+ 5'	9.86423	.73152	9.86537	.73345	9.86651	.73538	9.86764	.73730	9.86877	.73922	40
21	.86424	.73155	.86539	.73348	.86653	.73541	.86766	.73733	.86879	.73925	39
22	.86426	.73158	.86541	.73351	.86655	.73544	.86768	.73736	.86881	.73928 .73931	38
$\frac{23}{+6'}$	$\frac{.86428}{9.86430}$.73162	$\frac{.86543}{9.86545}$.73355	.86657 9 .86659	.73547	$\frac{.86770}{9.86772}$.73740	$\frac{.86883}{9.86885}$.73935	$\frac{37}{36}$
25	.86432	.73168	.86547	.73361	.86661	.73554	.86774	.73746	.86887	73938	35
26	.86434	.73171	.86569	.73364	.86662	.73557	.86776	.73749	.86889	.73941	34
27	.86436	.73174	.86550	.73368	.86664	.73560	.86778	.73752	.86890	.73944	33
+ 7	9.86438	.73178	9.86552	.73371	9.86666	.73563 .73567	9.86780	.73756	9.86892 .86894	.73947 .73951	32 31
29 30	.86440 .86442	.73181	.86554 .86556	.73374	.86668 .86670	.73570	.86781 .86783	73759	.86896	.73954	30
31	.86444	.73187	.86558	.73380	.86672	.73573	.86785	.73765	.86898	.73957	29
+ 8'	9.86446	.73191	9.86560	.73384	9.86674	.73576	9.86787	.73768	9.86900	.73960	28
33	.86447	.73194	.86562	.73387	.86676	.73579	.86789	.73772	.86902	.73963	27 26
34 35	.86449 .86451	.73197	.86564 .86566	.73390	.86678 .86679	.73583 .73586	.86791 .86793	.73775	.86904 .86905	.73970	25
+ 9'	9.86453	.73203	9.86568	.73396	9.86681	.73589	9.86795	.73781	9.86907	.73973	24
37	.86455	.73207	.86569	.73400	.86683	.73592	.86796	.73784	.86909	.73976	23
38	.86457	.73210	.86571	.73403	.86685	.73595	.86798	.73788	.86911	.73979	22
39 + 10 ′	$\frac{.86459}{9.86461}$.73213	$\frac{.86573}{9.86575}$.73406	$\frac{.86687}{9.86689}$.73599	$\frac{.86800}{9.86802}$.73791	.86913 9.86915	.73986	$\frac{21}{20}$
+ 10' 41	.86463	.73220	.86577	.73413	.86691	.73605	.86804	.73797	.86917	73989	19
42	.86465	.73223	.86579	.73416	.86693	.73608	.86806	.73890	.86919	.73992	18
43	.86467	.73226	.86581	.73419	.86695	.73611	.86808	.73804	.86920	.73995	17
+ 11'	9.86468	.73229 .73232	9.86583	.73422	9.86696 .86698	.73615	9.86810	.73807 .73810	9.86922 .86924	.73998 .74002	16 15
45 46	.86470 .86472	.73236	.86587	.73429	.86700	.73621	.86813	.73813	.86926	.74005	14
47	.86474	.73239	.86588	.73432	.86702	.73624	.86815	.73816	.86928	.74008	13
+ 12/	9.86476	.73242	9.86590	.73435	9.86704	.73628	9.86817	.73820	9.86930	.74011	12
49 50	.86478	73245	.86592	73438	.86706	.73631	.86819	73823	.86932	.74014	11 10
50 51	.86480 .86482	.73249	.86594	.73441	.86708 .86710	.73634	.86821 .86823	.73826	.86933 .86935	.74021	9
+ 13′	9.86484	.73255	9.86598	.73448	9.86712	.73640	9.86825	.73832	9.86937	.74024	8
53	.86486	.73258	.86600	.73451	.86713	.73644	.86827	.73836	.86939	.74027	7
54 55	.86488	.73261	.86602	.73454	.86715	.73647	.86828 .86830	.73839 .73842	.86941 .86943	.74030 .74033	5
+ 14'	$\frac{.86489}{9.86491}$.73265 .73268	$\frac{.86604}{9.86606}$.73461	$\frac{.86717}{9.86719}$.73653	9.86832	.73845	9.86945	.74037	4
57	.86493	.73271	.86607	.73464	.86721	.73656	.86834	.73848	.86947	.74040	3
58	.86495	.73274	.86609	.73467	.86723	.73660	.86836	.73852	.86948	.74043	2
59	.86497	.73278	.86611	.73470	.86725	.73663	.86838	.73855	.86950	.74046	1
+ 15'	9.86499	.73281	9.86613	.73474	9.86727	.73666	9.86840	.73858	9.86952	.74049	0
	16	h 9m	16	h 8m	16	h 7m	16	h 6m	16	h 5m	
			<u> </u>				1				ž.

TABLE 45.

	7h 55m	118° 45′	7h 56m	119° 0′	7h 57m	119° 15′	7h 53m	119° 30′	7h 59m	119° 45′	
s	Log. Hav.	Nat. Hav.	s								
0	9.86952	.74049	9.87064	.74240	9.87175	.74431	9.87286	.74621	9.87396	.74811	60
1 2	.86954 $.86956$.74052 .74056	.87066 .87068	.74244	.87177 .87179	.74434	.87288 .87290	.74624 .74628	.87398 .87400	.74814 .74817	59 58
13	.86958	.74059	.87070	.74250	.87181	.74441	.87292	.74631	.87402	.74820	57
+ 1'	$9.86960 \\ .86962$.74062 .74965	9.87072 .87073	.74253 .74256	9.87183 .87185	.74444	9.87294 $.87295$.74634 .74637	9.87404	.74823 .74827	56
5 6	.86963	.74069	.87075	.74260	.87187	.74450	.87297	.74640	.87407	.74830	55 54
7	.86965	.74072	.87077	.74263	.87188	.74453	.87299	.74643	.87409	.74833	53
+ 2'	9.86967 .86989	.74075 .74078	9.87079 .87081	.74266	9.87190 .87192	.74456 .74460	9.87301	.74646 .74650	9.87411 .87413	.74836 .74839	52 51
10	.86971	.74081	.87083	.74272	.87194	.74463	.87305	.74653	.87415	.74842	50
11	.86973	.74084	.87085	.74275	.87196	.74466	.87306	.74656	.87417	.74846	49
.+ 3'	9.86975 $.86977$.74091	9.87086 .87088	.74279	9.87198 .87199	.74469	9.87308 .87310	.74659 .74662	9.87418 .87420	.74849	48 47
14	.86978	.74094	.87090	.74285	.87201	.74475	.87312	.74665	.87422	.74855	46
$\frac{15}{+4'}$	$\frac{.86980}{9.86982}$.74097	$\frac{.87092}{9.87094}$.74288	$\frac{.87203}{9.87205}$.74479	$\frac{.87314}{9.87316}$.74669	$\frac{.87424}{9.87426}$.74858 .74861	45
17	.86984	.74104	.87096	.74294	.87207	.74485	.87318	.74675	.87428	.74864	44 43
18	.86986	.74107	.87098	.74298	.87209	.74488	.87319	.74678	.87429	.74868	42
$\frac{19}{+5'}$	$\frac{.86988}{9.86990}$.74110	$\frac{.87100}{9.87101}$.74301	$\frac{.87211}{9.87212}$.74491	$\frac{.87321}{9.87323}$.74681 .74684	$\frac{.87431}{9.87433}$	74871	41
21	.86991	.74116	.87103	.74307	.87214	.74498	.87325	.74688	.87435	.74877	39
22	.86993 $.86995$.74120 .74123	.87105 .87107	.74310 .74314	.87216	.74501	.87327 .87329	.74691 .74694	.87437	.74880	38
$\frac{23}{+6'}$	9.86997	.74126	9.87109	.74317	$\frac{.87218}{9.87220}$.74504 .74507	9.87330	.74697	$\frac{.87439}{9.87440}$.74883	37
25	.86999	.74129	.87111	.74320	.87222	.74510	.87332	.74700	.87442	.74890	35
26 27	.87001 .87003	.74132	.87112 .87114	.74323 .74326	.87224 .87225	.74514 .74517	.87334 .87336	.74703 .74707	.87444 .87446	.74893 .74896	34
+ 7'	9.87004	.74139	9.87116	.74329	9.87227	.74520	9.87338	.74710	9.87448	.74899	32
29	.87006	.74142	.87118	.74333	.87229	.74523	.87340	.74713	.87450	.74902	31
30 31	.87008 .87010	.74145	.87120 .87122	.74336 .74339	.87231 .87233	.74526 .74529	.87341 .87343	.74716 .74719	.87451 .87453	.74905 .74908	30 29
+ 8'	9.87012	.74151	9.87124	.74342	9.87235	.74533	9.87345	.74722	9.87455	.74912	28
33	.87014	.74155	.87125	.74345	.87236	.74536	.87347	.74726	.87457	.74915	27
34 35	.87016 .87018	.74158 .74161	.87127 .87129	.74349	.87238 .87240	.74539 .74542	.87349 .87351	.74729 .74732	.87459 .87460	.74918 .74921	26 25
+ 9'	9.87019	.74164	9.87131	.74355	9.87242	.74545	9.87352	.74735	9.87462	.74924	24
37 38	.87021 .87023	.74167	.87133 .87135	.74358 .74361	.87244 .87246	.74548 .74552	.87354 .87356	.74738	.87464	.74928 .74931	23
39	.87025	.74174	.87137	.74364	.87248	.74555	.87358	.74744	.87468	.74934	21
+ 10′	9.87027	.74177	9.87138	.74368	9.87249	.74558	9.87360	.74748	9.87470	.74937	20
41 42	.87029 .87031	.74180 .74183	.87140 .87142	.74371	.87251 .87253	.74561 .74564	.87362 .87363	.74751	.87471 .87473	.74940	19 18
43	.87032	.74186	.87144	.74377	.87255	.74567	.87365	.74757	.87475	.74946	
+ 11'	9.87034	.74190	9.87146	.74380	9.87257	.74571	9.87367	.74760	9.87477	.74950	16
45 46	.87036 .87038	.74193	.87148 .87149	.74383 .74387	.87259 .87260	.74574	.87369 .87371	.74763	.87479 .87481	.74953 .74956	15 14
47	.87040	.74199	.87151	.74390	.87262	.74580	.87373	.74770	.87482	.74959	13
+ 12'	9.87042 .87044	.74202 .74205	9.87153 .87155	.74393 .74396	9.87264 .87266	.74583	9.87374	.74773 .74776	9.87484 .87486	.74962	
50 50	.87045	.74209	.87157	.74399	.87268	.74586	.87376 .87378	.74779	.87488	.74965	10
51	.87047		.87159	.74402	.87270	.74593		.74782	.87490	.74972	9
+ 13′	$9.87049 \\ .87051$		9.87161 .87162	.74406 .74409	9.87271 .87273	.74596	9.87382 .87384	.74786	9.87492 .87493	.74975	8
54	.87053	.74221	.87164	.74412	.87275	.74602	.87385	.74792	.87495	.74981	6
55	.87055		.87166	.74415	.87277	.74605	.87387	.74795	.87497	74984	5
+ 14' 57	9.87057 .87059	.74228 .74231	9.87168 .87170	.74418 .74422	9.87279 .87281	.74609 .74612	9.87389 .87391	.74798 .74801	9.87499 .87501	.74987	3
58	.87060	.74234	.87172	.74425	.87283	.74615	.87393	.74805	.87502	.74994	2
$\frac{59}{+15'}$	$\frac{.87062}{9.87064}$		$\frac{.87174}{9.87175}$.74428	$\frac{.87284}{9.87286}$.87395 9.87396	.74808	$\frac{.87504}{9.87506}$.74997	$\frac{1}{0}$
10		1		1		'	-	<u> </u>	·	<u> </u>	1
	16	h 4m	16	h 3m	16	h 2m	16	h 1m	16	h Om	

	8h 0m	120° 0′	8h 2m 1	20° 30′	8h 4m	121° 0′.	8h 6m 1	21° 30′	8h 8m	122° 0′	
s ,	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	8
0 0	9.87506	0.75000	9.87724	0.75377	9.87939	0.75752	9.88153	0.76125	9.88364	0.76496	60
2 4+ 1	.87510 .87513	.75006 .75013	.87727 .87731	.75383 .75389	.87943 .87947	.75758 .75764	.88156 .88160	.76131 .76137	.88367 $.88371$.76502 .76508	58 56
6	.87517	.75019	.87735	.75396	.87950	.75771	.88163	.76144	.88374	.76514	54
8+ 2 10	$9.87521 \\ .87524$	0.75025 .75032	$9.87738 \\ .87742$	0.75402 .75408	$9.87954 \\ .87957$	0.75777 .75783	9.88167 $.88170$	0.76150 .76156	$9.88378 \\ .88381$	0.76521 .76527	52 50
12+ 3	.87528	.75038	.87745	.75415	.87961	.75789	.88174	.76162	.88385	.76533	48
14 16+ 4	.87532 9.87535	0.75044 0.75050	.87749 9.87753	.75421 0.75427	87964 9.87968	.75795 0.75802	.88177 9.88181	.76168 0.76175	.88388 9.88392	.76539 0.76545	46 44
18 20+ 5	.87539 .87543	.75057 .75063	.87756 .87760	.75433 .75440	.87971 .87975	.75808 .75814	.88185 .88188	.76181 .76187	.88395 .88399	.76551 .76558	42 40
22	.87546	.75069	.87764	.75446	.87979	.75820	.88192	.76193	.88402	.76564	38
24+ 6	9.87550 .87553	0.75075 .75082	9.87767 .87771	0.75452 .75458	9.87982 .87986	0.75827 .75833	9.88195 .88199	0.76199 .76205	9.88406 .88409	0.76570 .76576	36 34
26 28+ 7	.87557	.75088	.87774	.75465	.87989	.75839	.88202	.76212	.88413	.76582	32
30 32+ 8	0.87561 0.87564	.75094 0.75101	.87778 9.87782	.75471 0.75477	.87993 9.87996	.75845 0.75852	0.88206 0.88209	.76218 0.76224	0.88416 0.88420	.76588 0.76595	30 28
34	.87568	.75107	.87785	.75483	.88000	.75858	.88213	.76230	.88423	.76601	26
36+ 9 38	.87572 .87575	.75113 .75120	.87789 .87792	.75490 .75496	.88004 .88007	.75864	.88216 .88220	.76236 .76243	.88427	.76607 .76613	24 22
40+10	9.87579	0.75126	9.87796	0.75502	9.88011	0.75876	9.88223	0.76249	9.88434	0.76619	20
42 44 +11	.87583 .87586	.75132 .75138	.87800 .87803	.75508 .75515	.88014 .88018	.75883 .75889	.88227 .88230	.76255 .76261	.88437 .88441	.76625 .76632	18 16
46	.87590	.75145	.87807	.75521	.88021	.75895	.88234	.76267	.88444	.76638	14
48+12 50	9.87593	0.75151 .75157	9.87810 .87814	0.75527 .75533	$9.88025 \\ .88029$	0.75901 .75908	9.88237 $.88241$	0.76274	9.88448 .88451	0.76644 .76650	12 10
52+13	.87601	.75164	.87818	.75540	.88032	.75914	.88244	.76286	.88455	.76656	8
54 56+14	.87604 9.87608	.75170 0.75176	$\frac{.87821}{9.87825}$	$\frac{.75546}{0.75552}$.88036 9.88039	.75920 0.75926	$\frac{.88248}{9.88252}$.76292 0.76298	$\frac{.88458}{9.88462}$	-76662 0.76668	6
58	9.87612	0.75182	9.87828	0.75558	9.88043	0.75932	9.88255	0.76305	9.88465	0.76675	2
	15h	59m	15h	57m	15h	55m	15h	53m	15h	51m	
s ,	8h 1m	120° 0′	8h 3m 1	20° 30′	8h 5m	121° 0′	8h 7m 1	l21° 30′	8h 9m	122° 0′	s
s , 0+15	9.87615	0.75189	9.87832	0.75565	9.88046	0.75939	9.88259	0.76311	9.88469	0.76681	60
0+15 2	9.87615 .87619	0.75189 .75195	9.87832 .87835	0.75565 .75571	9.88046 .88050	0.75939 .75945	9.88259 .88262	0.76311 .76317	9.88469 .88472	0.76681 .76687	60 58
0+15 2 4+16 6	9.87615 .87619 .87623 .87626	0.75189 .75195 .75201 .75208	9.87832 .87835 .87839 .87843	0.75565 .75571 .75577 .75583	9.88046 .88050 .88053 .88057	0.75939 .75945 .75951 .75957	9.88259 .88262 .88266 .88269	0.76311 .76317 .76323 .76329	9.88469 .88472 .88476 .88479	0.76681 .76687 .76693 .76699	60 58 56 54
0+15 2 4+16 6 8+17	9.87615 .87619 .87623 .87626 9.87630	0.75189 .75195 .75201 .75208 0.75214	9.87832 .87835 .87839 .87843 9.87846	0.75565 .75571 .75577 .75583 0.75590	9.88046 .88050 .88053 .88057 9.88061	0.75939 .75945 .75951 .75957 0.75964	9.88259 .88262 .88266 .88269 9.88273	0.76311 .76317 .76323 .76329 0.76335	9.88469 .88472 .88476 .88479 9. 88483	0.76681 .76687 .76693 .76699	60 58 56 54 52
0+15 2 4+16 6 8+17 10 12+18	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637	0.75189 .75195 .75201 .75208 0.75214 .75220 .75226	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602	9.88046 .88050 .88053 .88057 9.88061 .88064 .88068	0.75939 .75945 .75951 .75957 0.75964 .75970 .75976	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280	0.76311 .76317 .76323 .76329 0.76335 .76342 .76348	9.88469 .88472 .88476 .88479 9.88483 .88486 .88490	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718	58 56 54 52 50 48
0+15 2 4+16 6 8+17 10 12+18 14	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87641	0.75189 .75195 .75201 .75208 0.75214 .75220 .75226 .75233	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608	9.88046 .88050 .88053 .88057 9.88061 .88064 .88068 .88071	0.75939 .75945 .75951 .75957 0.75964 .75976 .75976 .75982	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283	0.76311 .76317 .76323 .76329 0.76335 .76342 .76348	9.88469 .88472 .88476 .88479 9. 88483 .88486 .88490 .88493	0.76681 .76687 .76693 .76699 0.76705 .76711	58 56 54 52 50 48 46
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87641 9.87644 .87648	0.75189 .75195 .75201 .75208 0.75214 .75220 .75226 .75233 0.75239 .75245	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87861 .87864	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608 0.75615	9.88046 .88050 .88053 .88057 9.88061 .88064 .88068 .88071 9.88075 .88078	0.75939 .75945 .75951 .75957 0.75964 .75970 .75976 .75982 0.75988 .75995	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290	0.76311 .76317 .76323 .76329 0.76335 .76342 .76348 .76354 0.76360	9.88469 .88472 .88476 .88479 9.88483 .88486 .88490 .88493 9.88496 .88500	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718 .76724 0.76730	52 50 48 46 44 42
0+15 2 4+16 6 8+17 10 12+18 14 16+19	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87641 9.87644	0.75189 .75195 .75201 .75208 0.75214 .75220 .75226 .75233 0.75239	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87861	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608 0.75615	9.88046 .88050 .88053 .88057 9.88061 .88064 .88068 .88071 9.88075	0.75939 .75945 .75951 .75957 0.75964 .75970 .75976 .75982 0.75988	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287	0.76311 .76317 .76323 .76329 0.76335 .76342 .76348 .76354 0.76360	9.88469 .88472 .88476 .88479 9. 88483 .88486 .88490 .88493 9.88496	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718 .76724 0.76730	50 58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21	9.87615 .87619 .87623 .87626 9.87630 .87637 .87641 9.87644 .87648 .87655 9.87659	0.75189 .75195 .75201 .75208 0.75214 .75220 .75226 .75239 .75245 .75251 .75258	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87861 .87864 .87868 .87871	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608 0.75615 .75621 .75627 .75633	9.88046 .88050 .88053 .88057 9.88061 .88064 .88071 9.88075 .88078 .88082 .88082 .88085	0.75939 .75945 .75957 0.75964 .75970 .75976 .75982 0.75988 .75995 .76001 .76007	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88294 .88297	0.76311 .76317 .76323 .76329 0.76335 .76342 .76354 0.76366 .76373 .76379	9.88469 .88472 .88476 .88479 9.88483 .88486 .88490 .88496 .88500 .88500 .88500 9.88501	0.76681 .76687 .76699 0.76705 .76711 .76718 .76724 0.76730 .76736 .76742 .76748	58 56 54 52 50 48 46 44 42 40 38 36
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87644 .87648 .87655 9.87659 .87659	0.75189 .75195 .75201 .75208 0.75214 .75226 .75223 0.75233 0.75239 .75245 .75258 0.75264 .75270	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87861 .87864 .87868 .87877 9.87875 .87879	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608 0.75615 .75621 .75621 .75633 0.75640	9.88046 .88050 .88053 .88057 9.88061 .88068 .88071 9.88075 .88082 .88085 9.88089	0.75939 .75945 .75951 .75957 0.75964 .75976 .75988 .75988 .75995 .76001 .76007	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88294 .88294	0.76311 .76317 .76323 .76329 0.76335 .76342 .76348 .76354 0.76360 .76366 .76373	9.88469 .88479 9.88483 .88486 .88490 .88490 .88500 .88500 .88507 9.88510	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718 .76724 0.76730 .76736 .76742 .76748	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87641 9.87644 .87652 .87655 9.87659 .87666 .87660	0.75189 .75195 .75201 .75208 0.75214 .75220 .75233 0.75239 .75245 .75251 .75258 0.75264 .75270 .75277 .75283	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87864 .87864 .87879 .87877 .87879 .87882 .87886	0.75565 .75571 .75577 .75583 0.75590 .75596 .75608 0.75615 .75621 .75627 .75630 0.75640 .75646 .75652	9.88046 .88050 .88053 .88057 9.88061 .88064 .88071 9.88075 .88078 .88082 .88082 .88089 .88089 .88096 .88100	0.75939 .75945 .75957 0.75964 .75970 .75976 .75978 0.75988 .75995 .76001 .76007 0.76013 .76019 .76032	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88294 .88297 9.88301 .88304 .88308	0.76311 .76317 .76323 .76329 0.76335 .76342 .76354 0.76366 .76373 .76379 0.76385 .76391 .76397 .76403	9.88469 .88472 .88479 9.88483 .88486 .88490 .88493 9.88496 .88500 .88503 .88507 9.88510 .88517 .88517	0.76681 .76687 .76693 .76699 0.76705 .76711 .76724 0.76730 .76736 .76742 .76748 0.76754 .76761 .76767	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87644 .87648 .87652 .87655 9.87659 .87666	0.75189 .75195 .75201 .75208 0.75214 .75220 .75233 0.75239 .75245 .75251 .75258 0.75264 .75270	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87864 .87864 .87868 .87871 9.87879 .87879	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608 0.75615 .75621 .75627 .75630 0.75640 .75646	9.88046 .88050 .88053 .88057 9.88061 .88064 .88063 .88071 9.88075 .88082 .88082 9.88089 .88089 .88092	0.75939 .75945 .75957 0.75964 .75976 .75976 .75978 0.75988 .75995 .76001 .76007 0.76013	9.88259 .88262 .88266 .88269 9.88273 .88276 .88283 9.88287 .88290 .88294 .88294 .88304 .88304	0.76311 .76317 .76323 .76329 0.76335 .76342 .76354 0.76366 .76366 .76373 .76379 0.76385 .76391	9.88469 .88479 9.88483 .88486 .88490 9.88493 9.88496 .88500 .88503 .88507 9.88510 .88514	0.76681 .76687 .76693 .76699 0.76705 .76711 .76724 0.76730 .76736 .76748 0.76761 .76761 .76767 0.76773 0.76773	58 56 54 52 50 48 46 44 42 40 38 36 34 32
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87644 .87654 .87655 9.87659 .87666 .87666 .87670 9.87673 .87677	0.75189 .75195 .75201 .75208 0.75214 .75220 .75226 .75233 0.75239 .75245 .75258 0.75264 .75270 .75277 .75283 0.75289 0.75289 .75295	9.87832 .87835 .87839 .87844 .87850 .87853 .87857 9.87861 .87864 .87864 .87879 .87879 .87879 .87889 .87888 9.87889	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608 0.75615 .75621 .75621 .75633 0.75640 .75646 .75652 .75658 0.75658	9.88046 .88050 .88053 .88057 9.88061 .88064 .88068 .88071 9.88075 .88082 .88085 9.88089 .88092 .88096 .88100 9.88103 .88107	0.75939 .75945 .75957 0.75964 .75976 .75976 .75976 0.75988 .75995 .76007 0.76013 .76019 .76026 .76032 0.76038 0.76038	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88297 9.88301 .88304 .88311 9.88315 .88318	0.76311 .76317 .76329 .76329 0.76335 .76348 .76354 0.76366 .76379 0.76379 0.76391 .76397 .76400 0.76410	9.88469 .88479 9.88483 .88486 .88490 9.88493 9.88500 .88507 9.88510 .88517 .88517 .88521 9.88528 9.88528	0.76681 .76687 .76693 .76699 0.76705 .76718 .76724 0.76730 .76736 .76748 0.76754 .76761 .76767 0.76779 0.76779	58 56 54 52 50 48 46 44 42 40 38 36 34 32 32 32 32 32 32 32 32 32 32
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87641 9.87644 .87648 .87655 9.87659 .87659 .87662 .87666 .87670 9.87673	0.75189 .75195 .75201 .75208 0.75214 .75226 .75223 0.75239 .75245 .75251 .75258 0.75264 .75270 .75270 .75289 0.75289	9.87832 .87835 .87839 .87843 9.87846 .87850 .87857 9.87861 .87868 .87871 9.87875 .87879 .87889 .87889 .87890 9.87890	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75621 .75621 .75621 .75633 0.75640 .75646 .75652 .75652 .75652	9.88046 .88050 .88053 .88057 9.88061 .88064 .88068 .88071 9.88075 .88078 .88082 .88085 9.88089 .88092 .88100 9.88103 .88107 .88110	0.75939 .75945 .75957 0.75964 .75970 .75976 .75982 0.75988 .75995 .76001 .76007 0.76013 .76019 .76026 .76038 .76038	9.88259 .88262 .88266 .88269 9.88273 .88276 .88283 9.88287 .88290 .88294 .88297 9.88301 .88308 .88311 9.88315 .88318 .88322 .88325	0.76311 .76317 .76323 .76329 0.76335 .76348 .76354 0.76360 .76366 .76373 .76379 0.76391 .76397 .76403 0.76410	9.88469 .88479 9.88483 .88486 .88493 9.88496 .88500 .88500 .88507 9.88510 .88514 .88517 .88524 .88524 .88523 9.88535	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718 0.76730 .76736 .76742 .76748 0.76751 .76767 .76773 0.76779 .76785 .76797	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42	9.87615 .87619 .87623 .87626 9.37630 .87633 .87637 .87641 9.87644 .87648 .87655 9.87659 .87662 .87666 .87677 .87677 .87680 .87684 9.87688 .87691	0.75189 .75195 .75201 .75208 0.75214 .75220 .75223 0.75239 .75245 .75251 .75258 0.75264 .75270 .75277 .75283 0.75289 .75295 .75302 .75302 .75302 .75314 .75321	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87861 .87864 .87868 .87871 9.87875 .87889 .87889 .87889 .87890 .87900	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75627 .75627 .75633 0.75640 .75646 .75658 0.75665 0.75665 0.75665 0.75671 .75671 .75673	9.88046 .88050 .88053 .88057 9.88061 .88064 .88068 .88071 9.88075 .88078 .88082 .88085 9.88092 .88100 9.88103 .88110 9.88111 .88114	0.75939 .75945 .75957 0.75964 .75970 .75976 .75982 0.75988 .76905 .76001 .76007 0.76013 .76029 .76032 0.76038 .76044 .76057 0.76063 .76057	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88297 9.88301 .88304 .88304 .88311 9.88315 .88318 .88325 9.88325	0.76311 .76317 .76323 .76329 0.76335 .76348 .76354 0.76360 .76373 .76379 0.76385 .76391 .76403 0.76410 .76416 .76428 0.76428	9.88469 .88472 .88476 .88479 9.88483 .88486 .88490 .88500 .88503 .88510 .88511 .88514 .88521 9.88524 .88535 9.88528 .88535	0.76681 .76687 .76693 .76699 0.76705 .76711 .76724 0.76730 .76742 .76748 0.76754 .76761 .76767 0.76773 0.76773 0.76773 0.76795 .76797	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87644 .87648 .87655 9.87659 .87666 .87670 9.87673 .87677 .87680 .87684 9.87688 .87699	0.75189 .75195 .75201 .75208 0.75214 .75226 .75233 0.75239 .75245 .75258 0.75264 .75270 .75277 .75289 .75289 .75308 0.75314 .75311 .75327	9.87832 .87835 .87839 .87843 9.87846 .87850 .87853 .87857 9.87861 .87864 .87868 .87879 .87879 .87889 .87889 .87889 .87890 .87900 9.87904 .87907 .87911 .87914	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75608 0.75615 .75621 .75633 0.75646 .75652 .75658 0.75665 0.75665 0.75667 .75677 .75683 0.75696 .75696 .75702	9.88046 .88050 .88053 .88057 9.88061 .88068 .88071 9.88075 .88082 .88085 9.88089 .88092 .68096 .88100 9.88103 .88110 .88114 9.88117 .88114 9.88117 .88124 .88124	0.75939 .75945 .75957 0.75964 .75976 .75976 .75988 .75995 .76007 0.76013 .76019 .76026 .76038 .76038 .76050 .76057 0.76069 .76069 .76069 .76069 .76075	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88297 9.88301 .88304 .88311 9.88315 .88318 .88312 .88322 .88325 9.88329 .88332 .88333	0.76311 .76317 .76329 .76329 0.76335 .76348 .76354 0.76366 .76379 0.76391 .76397 .76403 0.76410 .76416 .76422 .76428 0.76434 .76447 .76445	9.88469 .88479 9.88483 .88486 .88490 .88490 .88500 .88507 9.88510 .88517 .88521 9.88524 .88528 .88535 9.88545 9.88545	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718 .76724 0.76730 .76742 .76742 .76761 .76767 0.76773 0.76773 0.76785 .76797 0.76804 .76816 .76816	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 28 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87644 .87652 .87655 9.87659 .87666 .87670 9.87673 .87677 .87680 .87684 9.87688 .87699 9.87702	0.75189 .75195 .75201 .75208 0.75214 .75220 .75233 0.75239 .75245 .75258 0.75264 .75270 .75277 .75283 0.75289 .75295 .75308 0.75314 .75321 .75321 .75323 0.75333	9.87832 .87835 .87839 .87846 .87850 .87853 .87857 9.87861 .87864 .87868 .87871 9.87875 .87879 .87882 .87889 .87898 .87890 .87900 9.87904 .87907 .87911 .87914 9.87918	0.75565 .75571 .75577 .75583 0.75590 .75596 .75608 0.75615 .75621 .75632 .75630 0.75646 .75652 .75658 0.75671 .75677 .75683 0.75690 .75708 0.75708	9.88046 .88050 .88053 .88057 9.88061 .88064 .88075 .88078 .88082 .88085 9.88089 .88092 .88096 .88100 9.88103 .88114 9.88117 .88121 .88124 .88128 9.88131	0.75939 .75945 .75957 0.75964 .75976 .75976 .75988 .75995 .76001 .76007 0.76032 0.76032 0.76032 0.76036 .76050 .76057 0.76063 .76063 .76063 .76075 .76075 .76082 0.76088	9.88259 .88262 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88294 .88294 .88301 .88304 .88308 .88311 9.88315 .88312 .88322 .88329 .88339 9.88339	0.76311 .76317 .76323 .76329 0.76335 .76348 .76354 0.76366 .76379 0.76385 .76391 .76410 0.76410 .76422 .76428 0.76434 .76443 0.76445	9.88469 .88479 9.88483 .88486 .88490 .88500 .88500 .88507 9.88510 .88517 .88521 9.88528 .88531 .88535 9.88549 9.88545	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718 .76724 0.76730 .76742 .76742 .76761 .76767 0.76773 0.76773 0.76779 .76785 .76797 0.76804 .76816 .76822 0.76822	60 58 56 52 50 48 46 44 40 38 36 32 30 28 26 24 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	9.87615 .87619 .87623 .87626 9.87630 .87633 .87641 9.87644 .87648 .87652 .87655 9.87659 .87662 .87666 .87677 .87684 9.87688 .87691 .87695 .87695 .87702 .87706	0.75189 .75195 .75201 .75208 0.75214 .75226 .75233 0.75239 .75245 .75251 .75258 0.75264 .75270 .75277 .75283 0.75289 .75302 .75302 .75302 .75302 .75303 0.75314 .75321 .75321 .75323 0.75333 0.75339	9.87832 .87835 .87839 .87843 9.87846 .87850 .87857 9.87861 .87868 .87871 9.87875 .87879 .87882 .87889 .87893 .87890 .87900 .87904 .87907 .87911 .87914 9.87918 .87911 .87921	0.75565 .75571 .75577 .75583 0.75590 .75502 .75608 0.75615 .75627 .75623 0.75640 .75646 .75658 0.75658 0.75671 .75677 .75680 0.75690 .75702 .75708 0.75714 .757721	9.88046 .88050 .88053 .88057 9.88061 .88068 .88071 9.88075 .88078 .88082 .88085 9.88089 .88092 .88096 .88100 9.88103 .88117 .88114 9.88117 .88124 .88128 9.88131 .88135	0.75939 .75945 .75957 0.75964 .75976 .75976 .75988 .75985 .76001 .76007 0.76013 .76019 .76032 0.76038 .76044 .76050 .76057 0.76063 .76069 .76075 .76082 0.76082 0.76084 .76094 .76094	9.88259 .88262 .88266 .88269 9.88273 .88276 .88280 .88287 .88290 .88297 9.88301 .88304 .88311 9.88315 .88318 .88322 .88329 .88332 .88339 9.88344 .88346 .88350	0.76311 .76317 .76323 .76329 0.76335 .76348 .76354 0.76360 .76379 0.76385 .76379 0.76410 .76416 .76422 .76428 0.76434 .76453 0.76459 .76455 0.76455	9.88469 .88479 9.88483 .88476 .88479 9.88483 .88496 .88503 .88507 9.88514 .88517 .88521 9.88528 .88533 .88535 9.88542 .88542 .88542 .88545 .88545 .88556	0.76681 .76687 .76693 .76699 0.76705 .76711 .76724 0.76730 .76730 .76742 .76748 0.76754 .76761 .76767 0.76779 0.76894 .76810 .76810 .76822 0.76828 .76834	60 58 56 52 50 48 46 44 42 42 40 38 36 34 32 28 26 24 22 20 18 16 14 12 10 8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87641 9.87644 .87648 .87655 9.87659 .87666 .87670 .87684 9.87688 .87691 .87695 .87699 9.87706 .87706 .87770	0.75189 .75195 .75201 .75208 0.75214 .75226 .75223 0.75239 .75245 .75251 .75258 0.75264 .75270 .75277 .75283 0.75289 .75302 .75308 0.75314 .75327 .75333 0.75333 0.75334 0.75336	9.87832 .87835 .87839 .87846 .87850 .87853 .87857 9.87861 .87864 .87868 .87879 .87882 .87889 .87889 .87893 .87890 .87900 .87901 .87911 .87914 9.87918 .87911 .87925 .87929	0.75565 .75571 .75577 .75583 0.75590 .75596 .75602 .75621 .75621 .75621 .75633 0.75640 .75646 .75652 .75652 .75677 .75683 0.75696 .75677 .75696 .75702 .75708 0.75714 .75721 .75721 .75721	9.88046 .88050 .88053 .88057 9.88061 .88068 .88071 9.88075 .88078 .88082 .88082 .88089 .88092 .88096 .88100 9.88103 .88114 9.88117 .88114 .88124 .88128 9.88131 .88135 .88139 .88139	0.75939 .75945 .75957 0.75964 .75976 .75976 .75982 0.75988 .75995 .76001 .76007 0.76013 .76019 .76038 .76044 .76050 .76057 0.76069 .76075 .76082 0.76082 0.76088 .76094 .76106	9.88259 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88294 .88297 9.88301 .88304 .88308 .88311 9.88315 .88312 .88322 .88325 9.88329 .88339 9.88346 .88336 .88339 9.88346	0.76311 .76317 .76323 .76329 0.76335 .76348 .76354 0.76360 .76366 .76379 0.76385 .76391 .76410 .76416 .76422 .76428 0.76434 .76453 0.76455 0.76457	9.88469 .88479 9.88483 .88486 .88490 .88493 9.88496 .88503 .88507 9.88510 .88514 .88517 .88528 .88538 9.88528 .88542 .88542 .88542 .88545 .88545 .88545 .88556	0.76681 .76687 .76693 .76699 0.76705 .76711 .76724 0.76730 .76736 .76748 0.76754 .76761 .76767 0.76779 0.76890 .76810 .76810 .76810 .76822 9.76828 .76834 .76840 .76840	60 58 56 54 52 50 48 46 44 40 38 36 32 30 28 26 24 22 20 18 16 16 16 16 16 16 16 16 16 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 56+29 58	9.87615 .87619 .87623 .87626 9.87630 .87633 .87641 9.87644 .87648 .87652 .87655 9.87659 .87662 .87666 .87677 .87684 9.87688 .87691 .87695 .87695 .87702 .87706	0.75189 .75195 .75201 .75208 0.75214 .75226 .75233 0.75239 .75245 .75251 .75258 0.75264 .75270 .75277 .75283 0.75289 .75302 .75302 .75302 .75302 .75303 0.75314 .75321 .75321 .75323 0.75333 0.75339	9.87832 .87835 .87839 .87843 9.87846 .87850 .87857 9.87861 .87868 .87871 9.87875 .87879 .87882 .87889 .87893 .87890 .87900 .87904 .87907 .87911 .87914 9.87918 .87911 .87921	0.75565 .75571 .75577 .75573 0.75596 .75602 .75608 0.75615 .75627 .75633 0.75640 .75652 .75658 0.75658 0.75665 .75671 .75677 .75683 0.75690 .75690 .75708 0.75708 0.75711 .75721 .75721 .75727 .75733 0.75739 .75739	9.88046 .88050 .88053 .88057 9.88061 .88068 .88071 9.88075 .88078 .88082 .88082 .88089 .88092 .88096 .88100 9.88103 .88107 .88114 9.88117 .88121 .88124 .88128 9.88135 .88135 .88135 .88142	0.75939 .75945 .75957 0.75964 .75970 .75976 .75982 0.75988 .75995 .76001 .76007 0.76013 .76019 .76032 0.76038 .76044 .76050 .76057 0.76088 .76094 .76106 .76106 .76106 .76113 .761119	9.88259 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88294 .88294 .88291 .88301 .88301 .88315 .88315 .88315 .88322 .88325 9.88339 9.88343 .88346 .88353 9.88357 .88360	0.76311 .76317 .76323 .76329 0.76335 .76348 .76354 0.76360 .76366 .76379 0.76385 .76391 .76410 0.76410 .76416 .76422 .76428 0.76434 .76447 .76453 0.76459 0.76459	9.88469 .88479 9.88483 .88486 .88490 .88500 .88500 .88507 9.88510 .88517 .88521 9.88528 .88531 .88535 9.88549 9.88545 .88545 .88545 9.88566 .88559	0.76681 .76687 .76693 .76699 0.76705 .76711 .76718 .76724 0.76730 .76736 .76742 .76761 .76767 0.76779 0.76785 .76797 0.76816 .76816 .76822 9.76828 .76847 0.76847 0.76847	60 58 56 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16 11 12 10 8 6 6 4 4 2 2 2 2 2 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29	9.87615 .87619 .87623 .87626 9.87630 .87633 .87637 .87644 .87648 .87655 9.87659 .87662 .87666 .87670 .87684 9.87688 .87699 9.87702 .87706 .87709 .87713	0.75189 .75195 .75201 .75208 0.75214 .75226 .75223 0.75233 0.75239 .75245 .75258 0.75264 .75270 .75277 .75289 .75289 .75308 0.75314 .75311 .75327 .75327 .75333 0.75339 .75346 .75352 .75368	9.87832 .87835 .87839 .87846 .87850 .87853 .87857 9.87861 .87864 .87868 .87877 .87879 .87882 .87889 .87889 .87893 .87890 .87907 .87911 .87914 9.87918 .87921 .87925 .87929	0.75565 .75571 .75577 .75583 0.75590 .75590 .75602 .75608 0.75615 .75621 .75621 .75633 0.75640 .75646 .75652 .75665 0.75665 .75671 .75677 .75683 0.75696 .75702 .75702 .75708 0.75714 .75721 .75721 .75723	9.88046 .88050 .88053 .88057 9.88061 .88068 .88071 9.88075 .88078 .88082 .88085 9.88089 .88092 .88096 .88100 9.88103 .88114 9.88114 .88124 .88128 9.88131 .88135 .88139 .88139	0.75939 .75945 .75957 0.75964 .75976 .75976 .75988 .75995 .76007 0.76013 .76019 .76026 .76038 .76038 .76044 .76050 .76069 .76069 .76082 0.76088 .76094 .76090 .76090 .76090 .76090 .76090 .76090 .76090 .76090 .76090 .76100 .76100 0.76113	9.88259 .88266 .88269 9.88273 .88276 .88280 .88283 9.88287 .88290 .88294 .88297 9.88301 .88304 .88308 .88311 9.88315 .88312 .88322 .88325 9.88329 .88336 .88339 9.88343 .88366 .88353 9.88353	0.76311 .76317 .76323 .76329 0.76335 .76348 .76354 0.76366 .76379 0.76385 .76391 .76397 .76410 .76416 .76422 .76428 0.76434 .76453 0.76459 .76457 0.76477	9.88469 .88479 9.88483 .88486 .88490 .88493 9.88496 .88503 .88507 9.88510 .88514 .88517 .88524 .88528 .88533 .88535 9.88542 .88542 .88545 .88549 9.88556 .88569 9.88569	0.76681 .76687 .76693 .76699 0.76705 .76718 .76724 0.76730 .76736 .76748 0.76754 .76761 .76767 0.76779 0.76804 .76810 .76832 0.76834 .76840 .76840 .76840	60 58 56 54 52 50 48 46 44 40 38 36 32 30 28 26 24 22 20 18 16 16 16 16 16 16 16 16 16 16

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TABLE 45.

	8h 10m	122° 30′	8h 12m	123° 0′	8h 14m	123° 30′	8h 16m	124° 0′	8h 18m	124° 30′	1
s ,		Nat. Hav.	-	Nat. Hav.		Nat. Hav.				Nat. Hav.	s
0 0	9.88573	0.76865	9.88780	0.77232	9.88984	0.77597	9.89187	9.77960	9.89387	0.78320	60
2	.88576	.76871	.88783	.77238	.88988	.77603	.89190	.77966	.89391	.78326	58
4+1	.88580 .88583	.76877	.88787 .88790	.77244 .77250	.88991 .88995	.77609 .77615	.89194	77972	.89394	78332	56
$\frac{6}{8+2}$	9.88587	0.76890	9.88793	0.77256	9.88938	0.77621	$\frac{.89197}{9.89200}$	0.77978	$\frac{.89397}{9.89400}$	$\frac{.78338}{0.78344}$	54
10	.88590	.76896	.88797	.77262	.89001	.77627	.89204	.77990	.89404	.78350	50
12+ 3	.88594	.76902	.88800	.77269	.89005	.77633	.89207	.77996	.89407	.78356	48
14 16+ 4	0.88597 0.88600	.76908 0.76914	0.88804 0.88807	.77275 0.77281	.89008 9.89012	0.77645	0.89210 0.89214	.78002 0.78008	.89411 9.89414	.78362 0.78368	46
18	.88604	.76920	.88811	.77287	.89015	.77651	.89217	.78014	.89417	.78374	42
20+ 5	.88607	.76926	.88814	.77293	.89018	.77657	.89221	.78020	.89421	.78380	40
22	.88611	.76932	.88817	.77299	.89022	.77664	.89224	.78026	.89424	.78386	38
24+ 6 26	$9.88614 \\ .88618$.76945	9.88821 .88824	0.77305	9.89025	0.77670	$9.89227 \\ .89231$	0.78032 .78038	9.89427	0.78392 .78398	36
28+ 7	.88621	.76951	.88828	.77317	.89032	.77682	.89234	.78044	.89434	.78404	32
30	.88625	.76957	.88831	.77323	.89035	.77688	.89237	.78050	.89437	.78410	30
32+ 8 34	9.88628 $.88632$	0.76963 .76969	9.88835 .88838	0.77329 .77336	9.89039 .89042	0.77694	9.89241	0.78056 .78062	9.89441	0.78416	28 26
36+ 9	.88635	.76975	.88841	.77342	.89045	.77706	.89247	.78068	.89447	.78428	24
38	.88639	.76981	.88845	.77348	.89049	.77712	.89251	.78074	.89450	.78434	22
40+10	9.88642	0.76988	.9.88848	0.77354	9.89052	0.77718	9.89254	0.78080	9.89454	0.78440	20
42 44 +11	.88645 .88649	.76994	.88852 .88855	.77369 .77366	.89056 .89059	.77724 .77730	.89257 .89261	.78086 .78092	.89457 .89460	.78446 .78452	18 16
46	.88652	.77006	.88858	.77372	.89062	.77736	.89264	.78098	.89464	.78458	14
48+12	9.88656	0.77012	9.88862	0.77378	9.89066	0.77742	9.89267	0.78104	9.89467	0.78464	12
50 52+ 13	.88659 .886 63	.77018 .77024	.88865 .88869	.77384 .77390	.89069 .89072	.77748	.89271 .89274	.78110	.89470 .89474	.78470 .78476	10 8
54	.88666	.77030	.88872	.77396	.89076	.77760	.89277	.78122	.89477	78482	6
56+14	9.88670	0.77036	9.88876	0.77403	9.89079	0.77766	9.89281	0.78128	9.89480	0.78488	4
58	9.88673	0.77043	9.88879	0.77409	9.89083	0.77772	9.89284	0.78134	.9.89484	0.78494	2
	15h	49m	15h	47m	15^h	45m	15h	43m	15^h	41m	
			and the same of th								-
8 /	8h 11m	122° 30′	8h 13m	123° 0′	8h 15m	123° 30′	8h 17m	124° 0′	8h 19m	124° 30′	8
0+ 15	9.88677	0.77049	9.88882	0.77415	9.89086	0.77779	9.89287	0.78140	9.89487	0.78500	60
0+15 2	9.88677 .88680	0.77049 .77055	9.88882 .88886	0.77415 .77412	9.89086 .89089	0.77779	9.89287 .89291	0.78140 .78146	9.89487 .89490	0.78500 .78506	60 58
0+15 2 4+16	9.88677 .88680 .88683	0.77049 .77055 .77061	9.88882 .88886 .88889	0.77415 .77412 .77427	9.89086 .89089 .89093	0.77779 .77785 .77791	9.89287 .89291 .89294	0.78140 .78146 .78152	9.89487 .89490 .89493	0.78500 .78506 .78512	60 58 56
0+15 2	9.88677 .88680	0.77049 .77055	9.88882 .88886	0.77415 .77412	9.89086 .89089	0.77779	9.89287 .89291	0.78140 .78146	9.89487 .89490	0.78500 .78506	60 58
0+15 2 4+16 6 8+17	9.88677 .88680 .88683 .88687 9.88690 .88694	0.77049 .77055 .77061 .77067 0.77073 .77079	9.88882 .88886 .88889 .88893 9.88896 .88899	0.77415 .77412 .77427 .77433 0.77439 .77445	9.89086 .89089 .89093 .89096 9.89099 .89102	0.77779 .77785 .77791 .77797 0.77803 .77809	9.89287 .89291 .89294 .89298 9.89301 .89304	0.78140 .78146 .78152 .78158 0.78164 .78170	9.89487 .89490 .89493 .89497 9.89500 .89503	0.78500 .78506 .78512 .78518 0.78524 .78530	60 58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085	9.88882 .88886 .88889 .88893 9.88896 .88899 .88903	0.77415 .77412 .77427 .77433 0.77439 .77445 .77451	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815	9.89287 .89291 .89294 .89298 9.89301 .89304 .89308	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176	9.89487 .89490 .89493 .89497 9.89500 .89503 .89507	0.78500 .78506 .78512 .78518 0.78524 .78530 .78536	60 58 56 54 52 50 48
0+15 2 4+16 6 8+17	9.88677 .88680 .88683 .88687 9.88690 .88694	0.77049 .77055 .77061 .77067 0.77073 .77079	9.88882 .88886 .88889 .88893 9.88896 .88899	0.77415 .77412 .77427 .77433 0.77439 .77445	9.89086 .89089 .89093 .89096 9.89099 .89102	0.77779 .77785 .77791 .77797 0.77803 .77809	9.89287 .89291 .89294 .89298 9.89301 .89304	0.78140 .78146 .78152 .78158 0.78164 .78170	9.89487 .89490 .89493 .89497 9.89500 .89503	0.78500 .78506 .78512 .78518 0.78524 .78530	60 58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88708	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104	9.88882 .88886 .88899 .88893 9.88896 .88999 .88903 .88906 9.88910 .88913	0.77415 .77412 .77427 .77433 0.77439 .77445 .77451 .77457 0.77463 .77469	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89110 9.89113 .89116	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833	9.89287 .89291 .89294 .89298 9.89301 .89304 .89308 .89311 9.89314 .89318	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194	9.89487 .89490 .89493 .89497 9.89500 .89503 .89507 .89510 9.89513 .89517	0.78500 .78506 .78512 .78518 0.78524 .78530 .78536 .78542 0.78548 .78554	60 58 56 54 52 50 48 46 44 42
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88708 .88711	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104 .77110	9.88882 .88886 .88889 .88893 9.88896 .88999 .88903 .88906 9.88910 .88913	0.77415 .77412 .77427 .77433 0.77439 .77445 .774451 .77457 0.77463 .77469 .77475	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89110 9.89113 .89116	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839	9.89287 .89291 .89294 .89298 9.89301 .89304 .89308 .89311 9.89314 .89318 .89321	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200	9.89487 .89490 .89493 .89497 9.89500 .89503 .89507 .89510 9.89513 .89517 .89520	0.78500 .78506 .78512 .78518 0.78524 .78530 .78536 .78542 0.78548 .78554 .78560	60 58 56 54 52 50 48 46 44 42 40
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88708 .88711	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77098 0.77098 .77104 .77110	9.88882 .88886 .8889 .88893 9.88896 .88899 .88903 .88910 .88916 .88916	0.77415 .77412 .77427 .77433 0.77439 .77445 .77451 .77457 0.77463 .77469	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89110 9.89113 .89116 .89120 .89123	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839	9.89287 .89291 .89294 .89298 9.89301 .89304 .89308 .89311 9.89314 .89318 .89321	0.78140 .78146 .78152 .78158 0.78164 .78170 .78166 .78182 0.78188 .78194 .78200 .78206	9.89487 .89490 .89493 .89497 9.89500 .89503 .89507 .89510 9.89513 .89517 .89520 .89523	0.78500 .78506 .78512 .78518 0.78524 .78530 .78536 .78542 0.78548 .78554	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	9.88677 .88680 .88683 .88687 9.88690 .88697 .88701 9.88704 .88708 .88711 9.88714 9.88718	0.77049 .77055 .77061 .77067 0.77073 .77079 .77092 0.77098 .77110 .77116 0.771122 .77128	9.88882 .88886 .88889 .88893 9.88896 .88890 .88906 9.88910 .88913 .88916 9.88920 9.88923	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 0.77482 0.77482	9.89086 .89089 .89093 .89096 9.89099 .89106 .89110 9.89113 .89116 .89120 9.89123	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77851	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89318 .89321 .89324 9.89328 .89331	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78206 0.78212 .78218	9.89487 .89490 .89493 .89497 9.89500 .89503 .89507 .89510 9.89513 .89517 .89520 .89523 9.89523	0.78500 .78506 .78512 .78518 0.78524 .78530 .78542 0.78548 .78554 .78566 0.78572 .78577	58 56 54 52 50 48 46 44 42 40 38 36 34
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88718 .88711 .88714 .88718	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104 .77110 .77116 0.77122 .77128 .77134	9.88882 .8886 .8889 .88893 9.88896 .88890 .88906 9.88910 .88916 .88920 9.88923 .88927 .88930	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 .77482 0.77488 .77488	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89113 .89116 .89120 .89123 9.89126 .89130	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77851 -77857	9.89287 .89291 .89294 .89298 9.89301 .89304 .89308 .89311 9.89314 .89321 .89324 9.89328 .89331 .89334	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 .78212 .78218 .78218	9.89487 .89490 .89493 .89497 9.89500 .89503 .89510 9.89513 .89517 .89520 .89523 9.89523 9.89530 .89533	0.78500 .78506 .78512 .78518 0.78524 .78530 .78542 0.78548 .78554 .78566 0.78572 .78577 .78577	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88704 .88704 .88711 .88714 9.88718 .88721 .88725	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104 .77110 0.77122 .77128 .77128 .77134	9.88882 .8886 .8886 .88893 9.88896 .88890 .88903 .88916 .88910 .88916 .88920 9.88923 .88927 .88930 .88933	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 .77482 0.77488 .77488 .77494 .77500 .77506	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89110 9.89113 .89120 .89123 9.89126 .89130 .89137	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77857 .77857 .77863 .77869	9.89287 .89291 .89294 .89298 9.89301 .89304 .89308 .89311 9.89314 .89321 .89324 9.89328 .89331 .89334 .89338	0.78140 .78146 .78152 .78158 0.78164 .78170 .78182 0.78188 .78194 .78200 .78212 .78218 .78218	9.89487 .89490 .89493 .89497 9.89500 .89503 .89510 9.89513 .89517 .89520 .89523 9.89523 9.89533 .89536	0.78500 .78506 .78512 .78518 0.78524 .78530 .78549 0.78548 .78554 .78560 .78566 0.78572 .78577	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88718 .88711 .88714 .88718	0.77049 .77055 .77061 .77067 0.77073 .77079 .77095 .77092 0.77098 .77110 0.77116 0.77122 .77128 .77134 .77140 0.77147	9.88882 .8886 .8889 .88893 9.88896 .88890 9.88910 .88913 .88916 .88920 9.88923 .88927 .88930 9.88933 9.88937	0.77415 .77412 .77427 .77433 0.77439 .77445 .77451 .77457 0.77463 .77469 .77475 0.77482 0.77488 .77494 .77500 .77506 0.77512 .77518	9.89086 .89089 .89093 .89096 9.89099 .89106 .89110 9.89113 .89116 .89120 .89123 9.89126 .89130 .89133 .89137 9.89140	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77845 0.77851 .77857 .77863 .77863 .77869 0.77875	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89321 .89324 9.89328 .89331 .89334 .89334 .89334 .89334	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78206 0.78212 .78218 .78224 .78224 .78230 0.78236 .78242	9.89487 .89490 .89493 .89497 9.89500 .89507 .89510 9.89513 .89517 .89520 .89523 9.89523 .89536 .89536 .89536 .89540	0.78500 .78506 .78512 .78518 0.78524 .78530 .78536 .78542 0.78548 .78564 .78566 0.78572 .78577 .78583 .78589 0.78595	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88714 .88714 .88714 .88715 .88721 .88725 .88728 9.88735 .88735	0.77049 .77055 .77061 .77067 0.77073 .77079 .77092 0.77098 .77110 .77116 0.771122 .77128 .77134 .77140 0.77147 .77153 .77159	9.88882 .8886 .88893 .88896 .88899 .88906 9.88910 .88916 .88920 9.88923 .88927 .88930 .88933 9.88937 .88940	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 .77482 0.77482 0.77482 0.77482 .77500 .77506 0.77518 .77524	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89110 9.89113 .89116 .89123 9.89126 .89130 .89133 .89147	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77845 0.77851 .77863 .77869 0.77875 .77881	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89321 .89324 9.89328 .89331 .89334 .89338 9.89341 .89344	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78212 .78218 .7824 .78230 0.78236 .78232 .78232 .78232 .78232 .78232 .78232 .78232	9.89487 .89490 .89493 .89497 9.89500 .89503 .89510 9.89513 .89517 .89520 9.89523 9.89523 .89530 .89536 9.89540 .89543	0.78500 .78506 .78512 .78518 0.78524 .78530 .78542 0.78548 .78554 .78566 0.78572 .78577 .78583 .78589 0.78595 0.78601	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 9.88701 9.88704 .88714 .88714 9.88714 .88714 .88725 .88728 9.88732 .88739 .88739	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77116 .77116 0.771128 .77134 .77140 0.77147 .77153 .77159 .77165	9.88882 .8886 .8889 .88893 9.88896 .88903 .88906 9.88910 .88913 .88916 .88920 9.88923 .88927 .88930 .88933 9.88937 .88940 .88944	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 .77482 0.77482 0.77484 .77500 .77506 0.77512 .77524 .77530	9.89086 .89089 .89093 .89096 9.89099 .89106 .89110 9.89113 .89123 9.89123 9.89123 .89130 .89137 9.89140 .89143 .89147 .89147	0.77779 .77785 .77797 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77851 .77863 .77869 0.77875 .77863 .77863 .77869	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89321 .89324 9.89328 .89331 .89334 .89334 .89334 .89341 .89344 .89348 .89351	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 .78212 .78212 .78218 .78224 .78230 0.78236 .78242 .78248 .78248 .78248	9.89487 .89490 .89493 .89497 9.89500 .89503 .89510 9.89513 .89517 .89523 .89523 .89523 .89530 .89530 .89530 .89544 .89546	0.78500 .78506 .78512 .78518 0.78524 .78530 .78542 0.78548 .78554 .78566 0.78572 .78577 .78583 .78589 0.78595 .78601 .78607	60 58 56 54 52 50 48 44 42 40 38 36 32 30 28 26 24 22
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88714 .88714 .88714 .88715 .88721 .88725 .88728 9.88735 .88735	0.77049 .77055 .77061 .77067 0.77073 .77079 .77092 0.77098 .77110 .77116 0.771122 .77128 .77134 .77140 0.77147 .77153 .77159	9.88882 .8886 .88893 .88896 .88899 .88906 9.88910 .88916 .88920 9.88923 .88927 .88930 .88933 9.88937 .88940 .88944	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 .77482 0.77482 0.77482 0.77482 .77500 .77506 0.77518 .77524	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89110 9.89113 .89116 .89123 9.89126 .89130 .89133 .89147	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77845 0.77851 .77863 .77869 0.77875 .77881	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89321 .89324 9.89328 .89331 .89334 .89338 9.89341 .89344	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78212 .78218 .78224 .78230 0.78236 .78242 .78248 .78248 .78248 .78248 .78248 .78248 .78248 .78248 .78248 .78254 .78260 .78266	9.89487 .89490 .89493 .89497 9.89500 .89503 .89510 9.89513 .89517 .89520 9.89523 9.89523 .89530 .89536 9.89540 .89543	0.78500 .78506 .78512 .78518 0.78524 .78530 .78542 0.78548 .78554 .78566 0.78572 .78577 .78583 .78589 0.78595 0.78601	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26	9.88677 .88680 .88683 .88687 9.88690 .88697 .88701 9.88704 .88708 .88711 9.88718 .88721 .88725 .88725 .88732 .88732 .88732 .88732 .88732 .88742 9.88745 .88749 .88749	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77116 0.77116 0.77122 .77128 .77140 0.77147 .77153 .77159 .77165 0.77177	9.88882 .8889 .88893 9.88896 .88899 .88903 .88906 9.88910 .88913 .88916 .88920 9.88923 .88927 .88930 9.88933 9.88937 .88940 .88947 9.88950 .88954	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 0.77482 0.77488 .77494 .77500 0.77512 .77518 .77524 .77530 0.77536 .77542 .77548	9.89086 .89089 .89093 .89096 9.89099 .89106 .89110 9.89113 .89116 .89120 .89123 9.89126 .89130 .89133 .89140 .89143 .89147 .89150 9.89153 .89157 .89160	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77851 .77857 .77863 .77863 .77863 .77881 .77875 .77881 .77887 .77893 0.77899 .77893	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89318 .89321 .89324 9.89328 .89331 .89334 .89334 .89341 .89344 .89348 .89351 9.89354 .89351	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78206 0.78212 .78218 .78224 .78230 0.78236 .78242 .78248 .78254 0.78266 .78266 .78272	9.89487 .89490 .89493 .89497 9.89500 .89503 .89507 .89510 9.89513 .89517 .89523 9.89523 9.89523 9.89536 .89536 9.89540 .89540 .89550 9.89556 .89556	0.78500 .78506 .78512 .78518 0.78524 .78536 .78536 .78542 0.78548 .78566 0.78572 .78577 .78583 .78589 0.78595 .78601 .78601 .78613 0.78619 .78625 .78531	60 58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 28 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46	9.88677 .88680 .88683 .88687 9.88690 .88697 .88701 9.88704 .88708 .88711 .88714 9.88718 .88725 .88725 .88728 9.88732 .88732 .88735 .88732 .88735 .88735 .88735 .88742	0.77049 .77055 .77061 .77067 0.77073 .77079 .77095 .77092 0.77098 .77104 .77116 0.771122 .77128 .77134 .77140 0.77147 .77153 .77159 .77165 0.77171 .77177	9.88882 .8886 .88893 .88896 .88899 .88906 9.88910 .88916 .88920 9.88923 .88927 .88930 .88933 9.88937 .88940 .88944 .88947 9.88950 .88954	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 0.77488 .77484 .77500 .77516 0.77518 .77524 .77530 0.77536 .77542 .77542 .77554	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89113 .89116 .89123 9.89126 .89130 .89137 9.89140 .89143 .89147 .89150 9.89153 .89157 .89160 .89163	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77845 0.77851 .77863 .77869 0.77875 .77881 .77887 .77893 0.77899 .77905 .77905	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89318 .89321 .89324 9.89328 .89331 .89334 .89338 9.89341 .89344 .89388 .89351 9.89354 .89361 .89364	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78212 .78218 .78230 0.78242 .78230 0.78242 .78248 .78242 .78248 .78248 .78248 .78248 .78254	9.89487 .89490 .89493 .89497 9.89500 .89503 .89510 9.89513 .89517 .89520 .89523 9.89523 .89536 9.89540 .89546 .89550 9.89553 .89556 .89559 .89563	0.78500 .78506 .78512 .78518 0.78524 .78530 .78542 0.78548 .78554 .78566 0.78572 .78577 .78583 .78589 0.78595 .78601 .78607 .78613 0.78619 .78637	60 58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 18 16 14
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	9.88677 .88680 .88683 .88687 9.88690 .88697 .88701 9.88704 .88708 .88711 9.88718 .88721 .88725 .88725 .88732 .88732 .88732 .88732 .88732 .88742 9.88745 .88749 .88749	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104 .77116 0.77122 .77128 .77134 .77140 0.77147 .77153 .77159 0.77171 .77178 0.77171 .77183 .77189 0.77189	9.88882 .8889 .88893 9.88896 .88899 .88903 .88906 9.88910 .88913 .88916 .88920 9.88923 .88927 .88930 9.88933 9.88937 .88940 .88947 9.88950 .88954	0.77415 .77412 .77427 .77433 0.77439 .774451 .77457 0.77463 .77469 .77482 0.77488 .77494 .77506 0.77512 .77518 .77524 .77530 0.77536 .77542 .77548 .77548 .77554 0.77560 .77560 .77560 .77560	9.89086 .89089 .89093 .89096 9.89099 .89102 .89106 .89113 .89116 .89120 .89123 9.89126 .89133 .89137 9.89140 .89143 .89147 .89150 9.89153 .89157 .89160 .89163 .89163	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77851 .77863 .77869 0.77875 .77861 .77881 .77893 0.77893 0.77893 0.77893 .77905 .77911 .77917 0.77923 .77929	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89318 .89321 .89324 9.89328 .89331 .89334 .89334 .89341 .89344 .89348 .89351 9.89354 .89351	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 .75206 0.78212 .78218 .78224 .78230 0.78242 .78248 .78248 .78248 .78248 .78248 .78254 0.78260 .78272 .78278 0.78284 .78278	9.89487 .89490 .89493 .89497 9.89500 .89500 .89510 9.89513 .89517 .89520 .89523 9.89527 .89530 .89536 9.89540 .89540 .89540 .89559 .89566 .89569	0.78500 .78506 .78512 .78518 0.78524 .78536 .78536 .78542 0.78548 .78560 0.78572 .78560 0.78572 .78589 0.78589 0.78595 .78601 .78607 .78613 0.78619 .78631 .78631 .78643 .78643	60 58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 22 20 18 16 14 12
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 .88701 9.88704 .88711 .88714 9.88718 .88721 .88725 .88732 .88732 .88732 .88732 9.88732 .88742 9.88749 .88749 .88759 .88763 .88763	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77110 0.77116 0.77122 .77128 .77134 .77140 0.77147 .77153 .77165 0.77171 .77171 .77171 .77183 .77189 0.77195 .77189	9.88882 .88886 .88889 .88893 9.88896 .88890 9.88910 .88916 .88920 9.88923 .88927 .88930 9.88933 9.88937 .88940 .88947 9.88950 .88954 .88957 .88961 9.88961	0.77415 .77412 .77427 .77433 0.77439 .774451 .77457 0.77463 .77469 .77475 0.77482 0.77482 0.77484 .77500 0.77512 .77518 .77524 .77530 0.77536 .77542 .77548 .77540 .77560 .77560 .77560 .77567	9.89086 .89089 .89093 .89096 9.89099 .89102 .89110 9.89113 .89116 .89120 .89123 9.89126 .89130 .89133 .89147 .89140 .89147 .89150 9.89167 .89160 .89163 9.89167 .89170	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77857 .77863 .77863 .77863 .77881 .77887 .77881 .77887 .77893 0.77893 .77993 .77911 .77917 0.77923 .77929	9.89287 .89291 .89294 .89298 9.89301 .89308 .89311 9.89314 .89318 .89321 .89324 9.89328 .89331 .89334 .89334 .89341 .89344 .89348 .89351 .89364 9.89368 .89361 .89364 9.89368	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78212 .78218 .78224 .78230 0.78236 0.78242 .78248 .78254 0.78266 .78272 .78278 0.78284 .78290 .78284	9.89487 .89490 .89493 .89497 9.89500 .89500 .89501 9.89513 .89517 .89520 .89523 9.89523 9.89533 .89536 9.89540 .89540 .89550 9.89556 .89559 .89566 .89569 .89569 .89563	0.78500 .78506 .78512 .78518 0.78524 .78536 .78536 .78542 0.78548 .78554 .78560 0.78572 .78577 .78583 .78595 .78601 .78607 .78619 0.78643 0.78649 .78649 .78649	60 58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 28 26 24 22 20 18 16 14 12 10 8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54	9.88677 .88680 .88683 .88687 9.88690 .88697 .88701 9.88704 .88718 .88714 9.88718 .88721 .88725 .88725 .88732 .88732 .88732 .88732 .88735 .88749 .88759 .88759 .88766 .88769	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104 .77110 0.77112 .77128 .77134 .77140 0.77147 .77153 .77159 .77165 0.77177 .77173 .77183 .77189 0.77195 .77201 .77201	9.88882 .8886 .8889 .88893 9.88896 .88890 9.88910 .88913 .88916 .88920 9.88923 .88927 .88930 9.88933 9.88937 .88940 .88947 .88950 .88957 .88961 9.88961	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 0.77482 0.77488 .77494 .77500 0.77512 .77518 .77524 .77530 0.77536 .77542 .77548 .77542 .77548 .77554 0.77560 .77554 0.77560 .77573 .77579	9.89086 .89089 .89093 .89096 9.89099 .89106 .89110 9.89113 .89116 .89120 .89123 9.89126 .89130 .89133 .89147 .89150 9.89153 .89157 .89160 .89163 9.89167 .89174 .89177	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77851 .77857 .77863 .77863 .77863 .77881 .77887 .77881 .77893 0.77899 .77995 .77911 .77917 0.77923 .77936 .77942	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89324 9.89324 9.89328 .89331 .89334 .89334 .89351 9.89354 .89351 9.89361 .89364 .89368 .89361 .89364 .89368	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78212 .78218 .78224 .78230 0.78236 0.78242 .78248 .78254 0.78266 .78272 .78278 0.78284 0.78260 .78278 0.78284 0.78284 0.78280 0.78280 0.78280	9.89487 .89490 .89493 .89497 9.89500 .89500 .89510 9.89513 .89517 .89520 9.89523 9.89523 9.89540 .89540 .89540 .89550 9.89556 .89559 .89566 .89569 .89563 9.89563	0.78500 .78506 .78512 .78518 0.78524 .78536 .78536 .78542 0.78548 .78566 0.78572 .78577 .78583 .78589 0.78595 .78601 .78613 0.78613 0.78643 .78637 0.78643 .78643 .78655 .78661	60 58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 28 20 20 18 18 11 11 11 11 11 11 11 11 11 11 11
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	9.88677 .88680 .88683 .88687 9.88690 .88697 .88701 9.88704 .88708 .88711 .88714 9.88718 .88725 .88725 .88725 .88732 .88732 .88732 .88732 .88735 .88739 .88742 9.88745 .88759 .88766 9.88769 9.88769	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77110 0.77116 0.77122 .77128 .77134 .77140 0.77147 .77153 .77165 0.77171 .77171 .77171 .77183 .77189 0.77195 .77189	9.88882 .8886 .88893 .88896 .88899 .88906 9.88910 .88916 .88920 9.88923 .88927 .88933 9.88937 .88944 .88947 9.88950 9.88951 .88951 .88964 .88961 9.88964 .88964 .88964 .88964	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 0.77482 0.77488 .77494 .77500 0.77506 0.77512 .77512 .77514 .77530 0.77560 .77560 .77560 .77573 .77573	9.89086 .89089 .89093 .89096 9.89099 .89102 .89110 9.89113 .89116 .89120 .89123 9.89126 .89130 .89133 .89147 .89140 .89147 .89150 9.89167 .89160 .89163 9.89167 .89170	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77845 0.77851 .77863 .77863 .77863 .77869 0.77875 .77881 .77887 .77887 .77889 .77893 0.77899 .77911 .77917 0.77923 .77929 .77936 .77942 0.77948	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89318 .89321 9.89324 9.89328 .89331 .89334 .89338 9.89341 .89344 .89348 .89351 9.89354 .89364 .89368 .89361 .89368 .89371 .89374 .89378	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 0.78182 0.78188 .78194 .78200 0.78212 .78218 .78230 0.78242 .78230 0.78242 .78248 .78248 .78254 0.78266 .78266 .78272 .78278 0.78284 .78290 .78296 .78302	9.89487 .89490 .89493 .89497 9.89500 .89500 .89501 9.89513 .89517 .89520 .89523 9.89523 9.89533 .89536 9.89540 .89540 .89550 9.89556 .89559 .89566 .89569 .89569 .89563	0.78500 .78506 .78512 .78518 0.78524 .78536 .78536 .78542 0.78548 .78554 .78560 0.78572 .78577 .78583 .78595 .78601 .78607 .78619 0.78643 0.78649 .78649 .78649	60 58 56 54 52 50 48 46 44 42 40 38 32 30 28 22 20 18 16 11 12 10 8 6
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29	9.88677 .88680 .88683 .88687 9.88690 .88697 .88701 9.88704 .88718 .88714 9.88718 .88721 .88725 .88725 .88732 .88732 .88732 .88732 .88735 .88749 .88759 .88759 .88766 .88769	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104 .77116 0.77112 .77128 .77134 .77140 0.77147 .77153 .77159 .77165 0.77171 .77173 .77189 0.77195 .77201 .77208 .77214	9.88882 .8886 .8889 .88893 9.88896 .88890 9.88910 .88913 .88916 .88920 9.88923 .88927 .88930 9.88933 9.88937 .88940 .88947 .88950 .88957 .88961 9.88961	0.77415 .77412 .77427 .77433 0.77439 .77445 .77457 0.77463 .77469 .77475 0.77482 0.77488 .77494 .77500 0.77512 .77518 .77524 .77530 0.77536 .77542 .77548 .77542 .77548 .77554 0.77560 .77554 0.77560 .77573 .77579	9.89086 .89089 .89093 .89096 9.89099 .89106 .89110 9.89113 .89116 .89120 .89123 9.89126 .89130 .89137 9.89140 .89143 .89147 .89150 9.89163 .89167 .89163 9.89167 .89170 .89174 .89177	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77839 .77845 0.77851 .77857 .77863 .77863 .77863 .77881 .77887 .77881 .77893 0.77899 .77995 .77911 .77917 0.77923 .77936 .77942	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89324 9.89324 9.89328 .89331 .89334 .89334 .89351 9.89354 .89351 9.89361 .89364 .89368 .89361 .89364 .89368	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78212 .78218 .78224 .78230 0.78236 0.78242 .78248 .78254 0.78266 .78272 .78278 0.78284 0.78260 .78278 0.78284 0.78284 0.78280 0.78280 0.78280	9.89487 .89490 .89493 .89497 9.89500 .89503 .89510 9.89513 .89517 .89523 9.89523 9.89523 .89536 9.89540 .89540 .89546 .89550 9.89563 9.89569 .89569 .89573 .89576 9.89579	0.78500 .78506 .78512 .78518 0.78524 .78536 .78542 0.78548 .78554 .78566 0.78572 .78577 .78583 .78589 0.78595 .78601 .78607 .78613 0.78619 .78637 0.78643 .78649 .78655 .78665	60 58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 28 28 22 20 18 18 11 11 11 11 11 11 11 11 11 11 11
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 46 46 47 57 57 57 58 58	9.88677 .88680 .88683 .88687 9.88690 .88694 .88697 9.88701 9.88704 .88708 .88711 .88714 9.88718 .88725 .88728 9.88732 .88735 .88739 .88749 .88752 .88756 9.88759 .88769 9.88769 9.88763 .88769	0.77049 .77055 .77061 .77067 0.77073 .77079 .77085 .77092 0.77098 .77104 .77110 0.77112 .77128 .77134 .77140 0.77147 .77153 .77159 .77165 0.77171 .77177 .77183 .77189 0.77195 .77201 .77208 .77214 0.77220 .77226 0.77232	9.88882 .8886 .88893 9.88896 .88899 .88906 9.88910 .88916 .88920 9.88923 .88927 .88930 .88933 9.88937 .88944 .88947 9.88950 .88951 9.88951 9.88951	0.77415 .77412 .77427 .77433 0.77439 .774457 0.77463 .77469 .77475 0.77482 0.77482 0.77484 .77500 0.77512 .77518 .77524 .77530 0.77536 .77542 .77548 .77544 0.77560 .77560 .77575 .77575 0.77585 .77597	9.89086 .89089 .89093 .89096 .89106 .89110 9.89113 .89116 .89120 .89123 9.89126 .89130 .89137 9.89140 .89147 .89150 9.89153 .89157 .89160 .89163 9.89167 .89170 .89174 .89177 .89180 .89184	0.77779 .77785 .77791 .77797 0.77803 .77809 .77815 .77821 0.77827 .77833 .77845 0.77857 .77863 .77863 .77863 .77887 .77893 0.77893 0.77893 0.77899 .77911 .77917 0.77923 .77929 .77936 .77942 0.77948 .77954	9.89287 .89291 .89294 .89298 9.89301 .89304 .89311 9.89314 .89324 9.89324 .89331 .89334 .89338 9.89341 .89344 .89351 9.89354 .89354 .89364 .89368 .89361 .89368 .89371 .89378 9.89381	0.78140 .78146 .78152 .78158 0.78164 .78170 .78176 .78182 0.78188 .78194 .78200 0.78212 .78218 .78224 .78230 0.78236 0.78242 .78248 .78254 0.78266 .78272 .78278 0.78284 0.78280 0.78280 0.78281 0.78280 0.78280 0.78280 0.78280 0.78280	9.89487 .89490 .89493 .89497 9.89500 .89500 .89510 9.89513 .89517 .89520 .89523 .89530 .89530 .89534 .89546 .89556 .89559 .89568 9.89566 .89569 .89576 9.89579 .89583	0.78500 .78506 .78512 .78518 0.78524 .78536 .78536 .78542 0.78548 .78566 0.78572 .78577 .78583 .78589 0.78595 .78601 .78601 .78613 0.78619 .78637 0.78643 .78649 .78649 .78667 .78673 0.78679	60 58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 11 12 10 8 6 4 4 4 4 4 4 4 4 4 4 4 4 4

	8h 20m	125° 0′	8h 22m	125° 30′	8h 24m	126° 0′	8h 26m	126° 30′	8h 28m	127° 0′	
. s ,	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.		Nat. Hav.		Nat. Hav.	s
0 0	9.89586	0.78679	9.89782	0.79035	9.89976	0.79389	9.90168	0.79741	9.90358	0.80091	60
2	.89589	.78685	.89785	.79041	.89979	.79395	.90171	.79747	.90361	.80097	58
4+ 1	.89592 .89596	.78691 .78697	.89789 .89792	.79047 .79053	.89983	.79401	.90175 .90178	.79753	.90365	.80102	56
8+2	9.89599	0.78703	9.89795	0.79059	9.89989	.79407 0.79413	9.90181	0.79759	9.90371	.80108 0.80114	54 52
10	.89602	.78709	.89798	.79065	.89992	.79419	.90184	.79770	.90374	.80120	50
12+ 3 14	.89606 .89609	.78715 .78721	.89802 .89805	.79071	.89995 .89999	.79425 .79430	.90187 .90191	.79776	.90377 .90380	.30126 .80131	48 46
16+ 4	9.89612	0.78726	9.89808	0.79082	9.90002	0.79436	9.90194	0.79788	9.90383	0.80137	44
18 20+ 5	.89615	.78732	.89811	.79088	.90005	.79442 .79448	.90197	.79794	.90387	.80143 .80149	42
22	.89619 .89622	.78738 .78744	.89815 .89818	.79094 .79100	.90008 .90012	.79454	.90200 .90203	.78800 .79805	.90390	.80155	38
24+ 6	9.89625	0.78750	9.89821	0.79106	9.90015	0.79460	9.90206	0.79811	9.90396	0.80160	36
26 28+ 7	.89628 .89632	.78756 .78762	.89824 .89828	.79112 .79118	.90018 .90021	.79466 .79471	.90210 .90213	.79817 .79823	.90399 .90402	.80166 .80172	34
30	.89635	78768	.89831	.79124	.90024	.79477	.90216	79829	.90405	.80178	30
32+8	9.89638	0.78774	9.89834	0.79130	9.90028	0.79483	9.90219	0.79835	9.90409	0.80184	28
34 36+ 9	.89642 .89645	.78780 .78786	.89837 .89840	.79136 .79142	.90031 .90034	.79489 .79495	.90222 .90225	.79840 .70846	.90412	.80189 .80195	26 24
38	.89648	.78792	.89844	.79148	.90037	.79501	.90229	.79852	.90418	.80201	22
40 +10	9.89651 .89655	0.78798 .78804	9.89847 .89850	0.79153 .79159	9.90040 .90044	0.79507 .79513	9.90232 $.90235$	0.79858 .79864	9.90421 .90425	0.80207 .80213	20 18
44+11	.89658	.78810	.89853	.79165	.90047	.79519	.90238	.79870	.90428	.80218	16
46	.89661	.78816	.89857	.79171	.90050	.79524	.90241	.79875	.90431	.80224	14
48+ 12 50	$9.89665 \\ .89668$	0.78822 .78828	$9.89860 \\ .89863$	0.79177 .79183	9.90053 .90056	0.79530 .79536	9.90244 $.90248$	0.79881 .79887	9.90434	0.80230 .80236	12 10
52+13	.89671	.78834	.89866	.79189	.90060	.79542	.90251	.79899	.90440	.80242	8
54 56+14	$\frac{.89674}{9.89678}$	78839 0.78845	$\frac{.89870}{9.89873}$.79195 0.79201	$\frac{.90063}{9.90066}$.79548 0.79554	$\frac{.90254}{9.90257}$.79893 0.79905	$\frac{.90443}{9.90446}$.80247 0.80253	4
58	9.89681	0.78851	9.89876	0.79207	9.90069	0.79560	9.90260	0.79910	.9.90449	0.80259	2
1										1	
	15h	39m	15h	137m	15h	35m	15h	33m	15h	31m	
8 /	15h 8h 21m		15h		15h 8h 25m		15h 8h 27m			31m 127° 0′	ß
	8h 21m	125° 0′	8h 23m	125° 30′	8h 25m	126° 0′	8h 27m	126° 30′	8h 29m	127° 0′	B 60
. 0+15	9.89684 .89687	125° 0′ 0.78857 .78863	9.89879 .89883	125° 30′ 0.79212 .79218	8h 25m .9.90072 .90076	126° 0′ 0.79565 .79571	8h 27m : 9.90264 .90267	126° 30′ 0.79916 .79922	8h 29m 9.90452 .90456	127° 0′ 0.80265 .80270	60 58
. 0+15 2 4+16	8h 21m 9.89684 .89687 .89691	125° 0′ 0.78857 .78863 .78869	9.89879 .89883 .89886	0.79212 .79218 .79224	8h 25m .9.90072 .90076 .90079	126° 0′ 0.79565 .79571 .79577	9.90264 .90267 .90270	126° 30′ 0.79916 .79922 .79928	8h 29m 9.90452 .90456 .90459	127° 0′ 0.80265 .80270 .80276	60 58 56
. 0+15	9.89684 .89687	125° 0′ 0.78857 .78863	9.89879 .89883	125° 30′ 0.79212 .79218	8h 25m .9.90072 .90076	126° 0′ 0.79565 .79571	8h 27m : 9.90264 .90267	126° 30′ 0.79916 .79922	8h 29m 9.90452 .90456	127° 0′ 0.80265 .80270	60 58
. 0+15 2 4+16 6 8+17	8h 21m 9.89684 .89687 .89691 .89694 9.89697 .89701	125° 0′ 0.78857 .78863 .78869 .78875 0.78881 .78887	9.89879 .89883 .89886 .89889 9.89892 .89896	0.79212 .79218 .79224 .79230 0.79236 .79242	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90088	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79595	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79945	8h 29m 9.90452 .90456 .90459 .90462 9.90465 .90468	127° 0′ 0.80265 .80270 .80276 .80282 0.80288 .80294	60 58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18	9.89684 .89687 .89691 .89694 9.89697 .89701 .89704	0.78857 .78863 .78869 .78875 0.78881 .78887 .78893	9.89879 .89883 .89886 .89889 9.89892 .89896 .89899	0.79212 .79218 .79224 .79230 0.79236 .79242 .79248	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90088 .90092	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79595 .79601	8h 27m : 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79945 .79951	8h 29m 9.90452 .90456 .90459 .90462 9.90465 .90468 .90471	127° 0′ 0.80265 .80270 .80276 .80282 0.80288 .80294 .80299	60 58 56 54 52 50 48
0+15 2 4+16 6 8+17 10 12+18 14 16+19	8h 21m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89704 .89707 9.89710	125° 0′ 0.78857 .78863 .78869 .78875 0.78881 .78887 .78893 .78899 0.78905	9.89879 .89883 .89886 .89889 9.89892 .89896 .89899 .89902 9.89905	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90088 .90092 .90095 9.90098	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79589 .79601 .79607 0.79612	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90289	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79945 .79951 .79957 0.79963	8h 29m 9.90452 .90456 .90459 .90462 9.90465 .90468 .90471 .90475 9.90478	127° 0′ 0.80265 .80270 .80276 .80282 0.80288 .80294 .80299 .80305 0.80311	58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18	8h 21m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89707 9.89710 .89714	0.78857 .78863 .78869 .78875 0.78881 .78887 .78893 .78899 0.78905	9.89879 .89883 .89886 .89889 9.89892 .89899 .89899 .89902 9.89905 .89908	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79254 0.79260 .79266	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90092 .90095 9.90098 .90101	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79595 .79607 0.79612 .79618	8ħ 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90289 .90292	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79945 .79957 0.79963 .79969	8h 29m 9.90452 .90456 .90459 .90462 9.90465 .90468 .90471 .90475 9.90478	0.80265 .80270 .80276 .80282 0.80288 .80294 .80299 .80305 0.80311 .80317	58 56 54 52 50 48 46 44 42
0+15 2 4+16 6 8+17 10 12+18 14 16+19	8h 21m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89704 .89707 9.89710	125° 0′ 0.78857 .78863 .78869 .78875 0.78881 .78887 .78893 .78899 0.78905	9.89879 .89883 .89886 .89889 9.89892 .89896 .89899 .89902 9.89905	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79266 .79271 .79277	8h 25m .9.90072 .90076 .90079 .90082 9.90088 .90092 .90095 9.90098 .90101 .90104 .90108	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79589 .79601 .79607 0.79612	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90289	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79945 .79951 .79957 0.79963	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90484 .90484	127° 0′ 0.80265 .80270 .80276 .80282 0.80288 .80294 .80299 .80305 0.80311	58 56 54 52 50 48 46 44 42 40 38
. 0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21	8 ^h 21 ^m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89707 9.89710 .89714 .89717 .89720 9.89723	125° 0′ 0.78857 .78863 .78869 .78875 0.78881 .78893 .78899 0.78905 .78911 .78917 .78923 0.78928	9.89879 .89883 .89886 .89889 9.89892 .89896 .89899 .89902 9.89905 .89908 .89912 .89915 9.89918	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79260 .79271 .79277 0.79283	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90092 .90095 9.90098 .90101 .90104 .90108 9.90111	126° 0′ 0.79565 .79571 .79577 .79583 0.79583 0.79589 .79601 .79607 0.79612 .79618 .79624 .79630 0.79636	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90289 .90292 .90295 .90298 9.90301	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79957 0.79963 .79963 .79969 .79974 .79980 0.79986	8h 29m 9.90452 .90456 .90459 .90462 9.90465 .90468 .90471 .90475 9.90481 .90481 .90487 9.90490	0.80265 .80270 .80276 .80282 0.80288 .80294 .80299 .80305 0.80311 .80317 .80323 .80328	58 56 54 52 50 48 46 44 42 40 38 36
. 0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	8 ^h 21 ^m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89707 9.89710 .89714 .89717 .89720	125° 0′ 0.78857 .78863 .78863 .78875 0.78875 0.78881 .78893 .78899 0.78905 .78911 .78917 .78923	8h 23m 1 9.89879 .89883 .89886 .89889 9.89892 .89896 .89899 .89902 9.89905 .89908 .89912 .89915	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79266 .79271 .79277	8h 25m .9.90072 .90076 .90079 .90082 9.90088 .90092 .90095 9.90098 .90101 .90104 .90108	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79601 .79607 0.79612 .79624 .79630	8ħ 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90289 .90292 .90292 .90295 .90298	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79951 .79957 0.79963 .79963 .79974 .79980	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90484 .90484	0.80265 .80270 .80276 .80282 0.80288 .80294 .80299 .80305 0.80311 .80317 .80323 0.80328	58 56 54 52 50 48 46 44 42 40 38
. 0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30	8 ^h 21 ^m 9.89684 .89687 .89691 9.89697 .89701 .89704 .89707 9.89714 .89717 .89720 9.89723 .89727 .89730 .89733	125° 0′ 0.78857 .78863 .78863 .78875 0.78871 .78893 .78899 0.78905 .78911 .78917 .78923 0.78928 .78934 .78940	8h 23m ; 9.89879 .89883 .89886 .89889 9.89892 .89899 .89902 9.89905 .89908 .89912 .89915 9.89918 .89921 .89925 .89928	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79266 .79271 .79277 0.79283 .79283 .79295 .79301	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90092 .90095 9.90098 .90101 .90104 .90108 9.90111 .90117 .90117	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79691 .79607 0.79612 .79618 .79624 .79630 0.79636 .79642 .79648 .79648	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90289 .90289 .90292 .90292 .90295 .90298 9.90301 .90305 .90308 .90311	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79951 .79957 0.79969 .79974 .79980 0.79986 .79992 .79998 .80004	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90481 .90487 9.90490 .90493 .90496 .90499	0.80265 .80276 .80276 .80282 0.80282 0.80288 .80294 .80299 .80305 0.80311 .80317 .80323 .80328 0.80334 .80340 .80346	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30
. 0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23	8 ^h 21 ^m 9.89684 .89687 .89691 .89697 9.89701 .89704 .89707 9.89710 .89714 .89717 .89720 9.89723 .89727 .89733 9.89733	125° 0′ 0.78857 .78863 .78863 .78869 .78875 0.78881 .78893 .78899 0.78905 .78911 .78923 0.78928 .78934 .78940 0.78952	8h 23m ; 9.89879 .89883 .89886 .89889 9.89892 .89896 .89899 .89902 9.89905 .89908 .89915 .89915 .89921 .89925 .89928 9.89931	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79260 .79271 .79277 0.79283 .79289 .79295 .79301 0.79307	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90092 .90095 9.90098 .90101 .90104 .90108 9.90111 .90114 .90120 9.90120	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79601 .79607 0.79612 .79618 .79624 .79630 0.79636 .79642 .79642 .796453 0.79653	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90289 .90292 .90295 .90298 9.90301 .90305 .90308 .90311 9.90314	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79951 .79957 0.79963 .79963 .79980 0.79986 .79998 .79998 .79998 .80004 0.80009	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90481 .90484 .90487 9.90490 .90493 .90499 9.90503	0.80265 .80270 .80276 .80282 0.80282 0.80284 .80294 .80395 0.80311 .80317 .80323 .80328 0.80334 .80340 .80351 0.80357	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	8h 21m 9.89684 .89687 .89691 .80694 9.89697 .89704 .89707 9.89710 .89714 .89717 .89720 9.89723 .89733 .89733 9.89736 .89736 .89740 .89744	125° 0′ 0.78857 .78863 .78869 .78875 0.78881 .78893 .78899 0.78905 .78911 .78917 .78923 0.78928 .78940 .78946 0.78952 .78958	8h 23m 1 9.89879 .89883 .89886 .89889 9.89892 .89896 .89902 9.89905 .89915 9.89915 9.89915 .89921 .89925 .89928 9.89931 .89934	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79277 0.79283 .79289 .79295 .79301 0.79307 .79313 .79319	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90095 .90095 9.90095 9.90096 .90101 .90104 .90108 9.90111 .90117 .90120 9.90124 .90127 .90130	126° 0′ 0.79565 .79571 .79577 .79589 .79595 .79601 .79607 0.79612 .79618 .79624 .79630 0.79636 .79642 .79648 .79653 0.79655 .79671	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90299 .90295 .90295 .90301 .90305 .90301 9.90314 .90317 .90320	126° 30′ 0.79916 .79928 .79934 0.79940 .79945 .79951 .79957 0.79963 .79974 .79980 0.79986 .79998 .79998 .79998 .79998 .80004 0.80009 .80015 .80021	8h 29m 9.90452 .90456 .90459 .90462 9.90465 .90465 .90471 .90475 9.90478 .90481 .90487 9.90490 .90493 .90499 9.90503 .90506 .90509	0.80265 .80276 .80276 .80276 .80282 0.80282 0.80283 .80294 .80305 0.80311 .80317 .80323 .80328 0.80334 .80340 .80351 0.80357 .80363 .80363	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38	8h 21m 9.89684 .89687 .89691 9.89697 .89701 .89704 .89707 9.89710 .89714 .89717 .89723 .89723 .89723 .89736 .89736 .89743 .89740 .89744	125° 0′ 0.78857 .78863 .78863 .78865 0.78875 0.78881 .78893 .78899 0.78995 .78911 .78917 .78923 0.78928 0.78928 .78934 .78946 0.78952 .78958 .789564 .78970	8h 23m 9.89879 .89883 .89889 9.89899 .89896 .89899 .89902 9.89905 .89915 9.89915 9.89918 .89921 .89925 .89928 9.89931 .89934 .89938 .89934	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79277 0.79283 .79277 0.79283 .79295 .79301 0.79307 .79313 .79319 .79325	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90098 .90095 9.90098 .90101 .90104 .90108 9.90111 .90117 .90120 9.90124 .90127 .90130 .90133	126° 0′ 0.79565 .79571 .79577 .79589 .79595 .79601 .79607 0.79618 .79630 0.79636 .79642 .79648 .79643 0.79659 .79665 .796671 .79677	8h 27m 9.90264 .90267 .90273 9.90276 .90279 .90286 9.90289 .90292 .90295 .90301 .90305 .90308 .90311 9.90314 .90314	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79945 .79957 0.79963 .79969 .79974 .79980 0.79986 .79998 .8004 0.80009 .80015 .80021	8h 29m 9.90452 .90456 .90459 .90465 .90468 .90471 .90475 9.90478 .90481 .90487 9.90490 .90490 .90490 .90490 .90500 .90500 .90500 .90512	0.80265 .80270 .80276 .80272 0.80282 0.80284 .80294 .80305 0.80311 .80317 .80323 .80328 0.80334 0.80351 0.80357 .80357 .80363 .80369 .80369	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	8h 21m 9.89684 .89687 .89691 .80694 9.89697 .89704 .89707 9.89710 .89714 .89717 .89720 9.89723 .89733 .89733 9.89736 .89736 .89740 .89744	125° 0′ 0.78857 .78863 .78869 .78875 0.78881 .78893 .78899 0.78905 .78911 .78917 .78923 0.78928 .78940 .78946 0.78952 .78958	8h 23m 1 9.89879 .89883 .89886 .89889 9.89892 .89896 .89902 9.89905 .89915 9.89915 9.89915 .89921 .89925 .89928 9.89931 .89934	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79277 0.79283 .79289 .79295 .79301 0.79307 .79313 .79319	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90095 .90095 9.90095 9.90096 .90101 .90104 .90108 9.90111 .90117 .90120 9.90124 .90127 .90130	126° 0′ 0.79565 .79571 .79577 .79589 .79595 .79601 .79607 0.79612 .79618 .79624 .79630 0.79636 .79642 .79648 .79653 0.79655 .79671	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90299 .90295 .90295 .90301 .90305 .90301 9.90314 .90317 .90320	126° 30′ 0.79916 .79928 .79934 0.79940 .79945 .79951 .79957 0.79963 .79974 .79980 0.79986 .79998 .79998 .79998 .79998 .80004 0.80009 .80015 .80021	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90484 .90487 9.90490 .90493 .90499 9.90503 .90506 .90509 .90512 9.90515 .90518	0.80265 .80270 .80276 .80282 0.80282 0.80284 .80294 .80395 0.80311 .80317 .80323 .80328 0.80334 .80340 .80351 0.80357 .80363 .80369 .80369 .80369	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+15 42 44+26	8h 21m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89707 9.89710 .89714 .89717 .89720 9.89723 .89727 .89730 9.89733 9.89736 .89740 .89749 .89753 .89753 .89756	125° 0′ 0.78857 .78863 .78869 .78875 0.78881 .78893 .78899 0.78905 .78911 .78923 0.78928 .78946 0.78952 .78946 0.78952 .78964 .78970 0.78970 0.78988	8h 23m ; 9.89879 .89886 .89889 9.89896 .89899 .89902 9.89905 .89905 .89915 .89915 .89921 .89925 .89934 .89938 .89941 .89938 .89941 .89950	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79260 .79271 .79277 0.79283 .79295 .79301 0.79307 .79313 .79319 .79325 0.79330 .79336 .79342	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90092 .90095 9.90098 .90101 .90104 .90108 9.90111 .90114 .90117 .90120 9.90124 .90127 .90130 .90133 9.90136 .90140 .90143	126° 0′ 0.79565 .79571 .79577 .79583 0.79583 0.79583 0.79610 .79601 .79612 .79618 .79624 .79630 0.79636 .79648 .79659 .79659 .79677 0.79683 .79688 .79688 .796988	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90292 .90295 .90298 9.90301 .90305 .90308 .90311 9.90314 .90317 .90320 .90324 9.90327 .90330 .90333	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79957 0.79963 .79963 .79969 .79986 .79998 .79998 .79998 .80004 0.80009 .80015 .80027 0.80038 .80038 .80038	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90481 .90484 .90487 9.90490 .90493 .90503 .90506 .90509 .90512 9.90518 .90518 .90521	0.80265 .80270 .80276 .80282 0.80288 .80294 .80395 0.80311 .80317 .80323 .80328 0.80334 .80340 .80351 0.80357 .80363 .80369 .80375 0.80380 .80386	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 22 22 20 18 16
. 0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+15 42 44+26	8h 21m 9.89684 .89687 .89691 .80694 9.89697 .89701 .89704 .89710 .89714 .89717 .89720 9.89723 .89727 .89730 .89736 .89740 .89749 .89749 .89753 .89749 .89756 .89759	125° 0′ 0.78857 .78863 .78863 .78869 .78875 0.78881 .78893 .78899 0.78905 .78911 .78917 .78923 0.78928 .78940 .78946 0.78952 .78958 .78964 .78970 0.78976 .78982 .78988	8h 23m 9.89879 .89883 .89889 9.89899 .89896 .89899 .89905 .89905 .89915 9.89915 9.89918 .89921 .89925 .89931 .89934 .89934 .89934 .89947 .89950 .89950	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79266 .79271 .79277 0.79283 .79295 .79301 0.79307 .79313 .79319 .79325 0.79336 .79336 .79338	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90098 .90095 9.90098 .90101 .90104 .90108 9.90111 .90117 .90120 9.90124 .90127 .90130 .90133 9.90136 .90140 .90143 .90146	126° 0′ 0.79565 .79571 .79577 .79589 .79595 .79601 .79607 0.79612 .79630 0.79636 .79632 .79642 .79638 .79653 0.79659 .79671 .79677 0.79683 .79688 .79694 .79700	8h 27m 9.90264 .90267 .90273 9.90276 .90279 .90286 9.90289 .90292 .90295 .90305 .90308 .90311 9.90314 .90327 .90320 .90324 4.90327 .90336	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79957 0.79963 .79969 .79974 .79980 0.79986 .79998 .8004 0.80009 .80015 .80021 .80027 0.80033 .80034 .80050	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90481 .90487 9.90490 .90499 9.90503 .90506 .90509 .90515 .90518 .90521 .90524	0.80265 .80270 .80276 .80272 0.80282 0.80284 .80294 .80305 0.80311 .80317 .80323 .80328 0.80334 0.80357 0.80357 0.80357 0.80357 0.80357 0.80359 .80386 .80386 .80386 .80389 .80388	60 58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 28 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+15 42 44+26 46 48+27 50	8h 21m 9.89684 .89687 .89691 .80694 9.89697 .89701 .89704 .89707 9.89714 .89717 .89720 9.89723 .89723 .89730 .89740 .89740 .89740 .89740 .89746 9.89749 .89753 .89756 .89759 9.89763 .89766	125° 0′ 0.78857 .78863 .78863 .78863 .78875 0.78875 0.78887 .78893 .78899 0.78923 0.78928 .78940 0.78952 .78958 .78964 .78970 0.78976 .78982 .78988 .78994 0.79006	8h 23m ; 9.89879 ; 89883 ; 89886 ; 89889 ; 9.89899 ; 89902 ; 9.89905 ; 89908 ; 89915 ; 9.89918 ; 89921 ; 89925 ; 89934 ; 89938 ; 89934 ; 9.89944 ; 9.89944 ; 9.89950 ; 9.89951 ; 89950 ; 9.89960 ; 9.89960 ; 9.89960 ; 9.89960 ; 9.89960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.89889 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.89889 ; 9.898960 ; 9.89889 ; 9.898960 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.8989 ; 9.89889 ; 9.8990 ; 9.890 ; 9.890 ; 9.	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79266 .79271 .79277 0.79283 .79283 .79295 .79301 0.79307 .79319 .79325 0.79336 .79348 0.79354 .79348	8h 25m .9.90072 .90076 .90079 .90082 .90085 .90092 .90095 .90098 .90101 .90104 .90108 9.90111 .90114 .90117 .90120 9.90124 .90127 .90130 .90133 9.90136 .90140 .90143 .90146 9.90149 .90152	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79601 .79607 0.79618 .79624 .79630 0.79636 .79642 .79648 .79653 0.79659 .79677 0.79683 .79688 .79688 .79694 .79706 0.79706 .79706	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90289 .90292 .90292 .90295 .90305 .90301 .90311 9.90314 .90317 .90320 .90324 4.90327 .90330 .90336 9.90339 .90342	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79951 .79957 0.79969 .79974 .79980 0.79986 .79992 .79988 .80004 0.8009 .80015 .80027 0.80033 .80038 .80044 .80056 .80056	8h 29m 9.90452 .90456 .90459 .90465 .90468 .90471 .90475 9.90478 .90481 .90487 9.90490 .90499 9.90503 .90509 .90512 9.90515 .90518 .90521 .90521 9.90527 .90531	0.80265 .80270 .80276 .80282 0.80282 0.80288 .80294 .80299 .80305 0.80311 .80317 .80323 .80328 0.80334 .80351 0.80357 .80363 .80363 .80369 .80375 0.80386 .80392 .80398 0.80403 .80409	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 16 14 11 12 10
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+15 42 44+26 46 48+27 50 52+28	8h 21m 9.89684 .89687 .89691 .80694 9.89697 .89701 .89704 .89707 9.89710 .89714 .89717 .89720 9.89723 .89727 .89730 .89733 9.89743 .89746 .89749 .89748 .89756 .89766 .89766 .89769	125° 0′ 0.78857 .78863 .78863 .78869 .78875 0.78881 .78893 .78899 0.78905 .78911 .78923 0.78928 .78946 0.78952 .78958 .78964 .78976 0.78976 .78988 .78989 .78988 .78994 0.799006 .799011	8h 23m ; 9.89879 .89883 .89886 .89889 9.89892 .89896 .89902 9.89905 .89908 .89915 .89915 .89928 .89921 .89928 .89931 .89934 .89938 .89941 .89950 .89963	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79266 .79271 .79277 0.79283 .79289 .79295 .79301 0.79307 .79313 .79319 .79325 0.79336 .79342 .79348 0.79354 .79366	8h 25m .9.90072 .90076 .90079 .90082 .90085 .90098 .90092 .90095 .90101 .90104 .90108 9.90111 .90114 .90120 9.90124 .90127 .90130 .90136 .90140 .90143 .90146 .90149 .90152 .90356	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79601 .79607 0.79612 .79618 .79624 .79630 0.79636 .79642 .79648 .79653 0.79653 0.79653 0.79659 .79665 .79677 0.79688 .79688 .79694 .79700 0.79706 .79712 .79718	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90295 .90298 9.90301 .90305 .90311 9.90314 .90317 .90320 .90324 -9.90339 .90336 9.90339 .90346	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79957 0.79963 .79959 .79974 .79980 0.79986 .79998 .80004 0.80009 .8015 .80021 .80027 0.80033 .80038 .80044 .80050 0.80056 .80062 .80068	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90484 .90487 9.90490 .90499 9.90503 .90506 .90509 .90512 9.90515 .90518 .90521 .90524 9.90527 .90531 .90534	0.80265 .80270 .80276 .80282 0.80288 .80294 .80299 .80305 0.80311 .80317 .80323 .80328 0.80334 .80340 .80351 0.80357 .80363 .80369 .80369 .80386 .80398 .80398 .80398 .80398 .80398 .80403 .804409 .80415	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 14 12 10 8
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+15 42 44+26 46 48+27 50	8h 21m 9.89684 .89687 .89691 .80694 9.89697 .89701 .89704 .89707 9.89714 .89717 .89720 9.89723 .89723 .89730 .89740 .89740 .89740 .89740 .89746 9.89749 .89753 .89756 .89759 9.89763 .89766	125° 0′ 0.78857 .78863 .78863 .78863 .78875 0.78875 0.78887 .78893 .78899 0.78923 0.78928 .78940 0.78952 .78958 .78964 .78970 0.78976 .78982 .78988 .78994 0.79006	8h 23m ; 9.89879 ; 89883 ; 89886 ; 89889 ; 9.89899 ; 89902 ; 9.89905 ; 89908 ; 89915 ; 9.89918 ; 89921 ; 89925 ; 89934 ; 89938 ; 89934 ; 9.89944 ; 9.89944 ; 9.89950 ; 9.89951 ; 89950 ; 9.89960 ; 9.89960 ; 9.89960 ; 9.89960 ; 9.89960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.89889 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.898960 ; 9.89889 ; 9.898960 ; 9.89889 ; 9.898960 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.89889 ; 9.8989 ; 9.89889 ; 9.8990 ; 9.890 ; 9.890 ; 9.	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79266 .79271 .79277 0.79283 .79283 .79295 .79301 0.79307 .79319 .79325 0.79336 .79348 0.79354 .79348	8h 25m .9.90072 .90076 .90079 .90082 .90085 .90092 .90095 .90098 .90101 .90104 .90108 9.90111 .90114 .90117 .90120 9.90124 .90127 .90130 .90133 9.90136 .90140 .90143 .90146 9.90149 .90152	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79601 .79607 0.79618 .79624 .79630 0.79636 .79642 .79648 .79653 0.79659 .79677 0.79683 .79688 .79688 .79694 .79706 0.79706 .79706	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90289 .90292 .90292 .90295 .90305 .90301 .90311 9.90314 .90317 .90320 .90324 4.90327 .90330 .90336 9.90339 .90342	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79951 .79957 0.79969 .79974 .79980 0.79986 .79992 .79988 .80004 0.8009 .80015 .80027 0.80033 .80038 .80044 .80056 .80056	8h 29m 9.90452 .90456 .90459 .90465 .90468 .90471 .90475 9.90478 .90481 .90487 9.90490 .90499 9.90503 .90509 .90512 9.90515 .90518 .90521 .90521 9.90527 .90531	0.80265 .80270 .80276 .80282 0.80282 0.80288 .80294 .80299 .80305 0.80311 .80317 .80323 .80328 0.80334 .80351 0.80357 .80363 .80363 .80369 .80375 0.80386 .80392 .80398 0.80403 .80409	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 11 11 11 11 11 11 11 11 11 11 11 11 11
. 0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+15 42 44+26 46 46 48+27 50 52+28 54 56+29 58	8h 21m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89704 .89717 .89720 9.89713 .89723 .89723 .89730 .89736 .89740 .89744 .89745 .89753 .89759 9.89763 .89769 9.89762 9.89779	125° 0′ 0.78857 .78863 .78863 .78863 .78875 0.78881 .78893 .78893 .78999 0.78905 .78911 .78917 .78923 0.78928 .78940 .78946 0.78952 .78958 .78964 .78970 0.78970 0.78970 .78982 .78988 .78994 0.79006 .79006 .79011 .79017 0.79023 .79029	8h 23m 9.89879 .89883 .89889 9.89889 9.89899 .89902 9.89905 .89905 .89915 9.89918 .89921 .89925 .89934 .89934 .89934 .89934 .89934 .89950 .89950 .89954 .89950 .89957 .89960 .89963 .89966 9.89970 .89973	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79266 .79271 .79277 0.79283 .79295 .79301 0.79307 .79313 .79319 .79325 0.79336 .79342 .79348 0.79354 .79360 .79366 .79372 0.79377	8h 25m .9.90072 .90076 .90079 .90082 .90085 .90095 .90095 .90101 .90104 .90108 9.90111 .90114 .90117 .90120 9.90124 .90127 .90130 .90133 9.90136 .90140 .90149 .90152 .90356 .90159 .90162 .90165	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79691 .79607 0.79618 .79624 .79630 0.79636 .79648 .79648 .79653 0.79659 .79665 .79671 .79677 0.79688 .79694 .79700 0.79706 .79712 .79718 .79724 0.79729 .79735	8h 27m 9.90264 .90267 .90270 .90273 9.90276 .90279 .90282 .90286 9.90289 .90292 .90295 .90305 .90301 9.90314 .90314 .90317 .90320 .90324	126° 30′ 0.79916 .79922 .79928 .79934 0.79940 .79945 .79957 0.79963 .79969 .79974 .79980 0.79986 .79998 .80004 0.80099 .80015 .80027 0.80033 .80038 .80044 .80050 0.80056 .80062 .80068 .80063 .80063 .80063	8h 29m 9.90452 .90456 .90459 .90465 .90468 .90471 .90475 9.90478 .90481 .90487 9.90490 .90499 9.90503 .90506 .90509 .90512 9.90515 .90518 .90521 9.90524 9.90527 .90531 .90534 9.90537 9.90540 .90543	127° 0′ 0.80265 .80270 .80276 .80282 0.80288 .80294 .80299 .80305 0.80311 .80317 .80323 .80328 0.80334 .80340 .80346 .80351 0.80357 .80363 .80369 .80375 0.80386 .80398 0.80403 .80403 .80403 .80409 .80415 0.80427 .80432	60 58 56 54 52 50 48 46 44 42 38 36 34 32 30 28 26 24 22 20 18 16 11 11 10 8 6 4
. 0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+15 42 44+26 46 48+27 50 52+28 54 56+29	8h 21m 9.89684 .89687 .89691 .89694 9.89697 .89701 .89704 .89707 9.89710 .89714 .89717 .89720 9.89723 .89723 .89730 .89733 9.89736 .89740 .89749 .89753 .89756 .89756 .89766 .89769 .89772 9.89776	125° 0′ 0.78857 .78863 .78863 .78863 .78875 0.78875 0.78881 .78893 .78899 0.78905 .78911 .78923 0.78928 .78946 0.78952 .78958 .78964 .78970 0.78976 0.78988 .78994 0.79006 .79006 .79011 .79017 0.79023 .79023	8h 23m 9.89879 .89883 .89889 9.89896 .89889 9.89896 .89890 89905 .89905 .89915 9.89915 9.89918 .89921 .89925 .89931 .89931 .89931 .89931 .89934 .89947 .89950 .89950 .89963 .89966 9.89970	125° 30′ 0.79212 .79218 .79224 .79230 0.79236 .79242 .79248 .79254 0.79260 .79266 .79271 .79277 0.79283 .79289 .79295 .79301 0.79307 .79313 .79319 .79325 0.79336 .79348 0.79354 .79358 0.79358 0.79358 0.79358 0.79358	8h 25m .9.90072 .90076 .90079 .90082 9.90085 .90098 .90101 .90104 .90108 9.90111 .90117 .90120 9.90124 .90127 .90130 .90133 9.90136 .90140 .90149 .90149 .90152 .90356 .90159 9.90162	126° 0′ 0.79565 .79571 .79577 .79583 0.79589 .79601 .79607 0.79612 .79618 .79624 .79630 0.79636 .79642 .79648 .79653 0.79653 0.79653 0.79659 .79665 .79671 .79677 0.79688 .79688 .79694 .79700 0.79706 .79712 .79718 .79724 0.79729 .79735 0.79741	8h 27m 9.90264 .90267 .90273 9.90276 .90279 .90286 9.90286 9.90289 9.90292 .90295 .90301 .90305 .90314 .90317 .90320 .90324 .90333 .90336 9.90339 .90342 .90349 9.90352	126° 30′ 0.79916 .79922 .79928 .79934 0.79945 .79957 0.79963 .79957 0.79986 .79998 0.79986 .79992 .79998 .80004 0.80009 .8015 .80027 0.80033 .80034 .80050 0.8066 .80662 .80068 .80063 .80068 .80073 .80081	8h 29m 9.90452 .90456 .90459 .90462 9.90468 .90471 .90475 9.90478 .90481 .90487 9.90490 .90493 .90506 .90509 .90512 9.90515 .90518 .90521 .90524 9.90527 .90534 .90534	0.80265 .80270 .80276 .80276 .80282 0.80283 .80294 .80299 .80305 0.80311 .80317 .80323 .80328 0.80351 0.80357 0.80357 0.80357 0.80380 .80369 .80375 0.80380 .80392 .80398 0.80403 .80403 .80403 .80415 .80427 .80438	58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 30 28 26 24 22 20 118 16 114 112 10 8 6 4

TABLE 45.

	8h 30m	127° 30′	8h 32m	128° 0′	8h 34m	128° 30′	8h 36m	129° 0′	8h 38m	129° 30′	1
s ′	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat, Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	. 8
0 0	9.90546	0.80438	9.90732	0.80783	9.90916	0.81126	9.91098	0.81466	9.91277	0.81804	60
2	.90549	.80444	.90735	.80789	.90919	.81131	.91101	.81472	.91280	.81810	<i>58</i>
4+1	.90552	.80450	.90738	.80795	.90922	.81137	.91104	.81477	.91283	.81815	56
6	.90556	.80455	.90741	.80800	.90925	.81143	.91107	.81483	.91286	.81821	54
8+ 2 10	9.90559	0.80461 .80467	9.90744	0.80806 .80812	9.90928	0.81148 .81154	9.91110 .91113	0.81489 .81494	$9.91289 \\ .91292$	0.81826 .81832	52 50
12+ 3	.90565	.80473	.90751	.80817	.90934	.81160	.91116	.81500	.91295	.81838	48
14	.90568	.80478	.90754	.80823	.90937	.81165	.91119	.81506	.91298	.81843	46
16+ 4	9.90571	0.80484	9.90757	0.80829	9.90940	0.81171	9.91122	0.81511	9.91301	0.81849	44
18	.90574	.80490	.90760	.80835	.90943	.81177	.91125	.81517	.91304	.81854	42
20+ 5	.90577 .90580	.80496 .80502	.90763 .90766	.80840 .80846	.90946 .90949	.81183 .81188	.91128 .91131	.81523 .81528	.91307 .91310	.81860 .81866	40 38
$\frac{24+6}{24+6}$	9.90584	0.80507	9.90769	0.80852	9.90952	0.81194	9.91134	0.81534	9.91313	0.81871	36
26	.90587	.80513	.90772	.80858	.90955	.81200	.91137	.81539	.91316	.81877	34
28+ 7	.90590	.80519	.90775	.80863	.90958	.81205	.91140	.81545	.91319	.81882	32
30	.90593	.80525	.90778	.80869	.90962	.81211	.91143	.81551	.91322	.81888	30
32+8 34	9.90596	0.80530 .80536	9.90781	0.80875 .80880	9.90965 .90968	0.81217 .81222	9.91146	0.81556 .81562	9.91325 $.91328$	0.81894	28 26
36+ 9	.90602	.80542	.90787	.80886	.90971	.81228	.91152	.81568	.91331	.81905	24
38	.90605	.80548	.90790	.80892	.90974	.81234	.91155	.81573	.91334	.81910	22
40+10	9.90608	0.80553	9.90794	0.80898	9.90977	0.81239	9.91158	0.81579	9.91337	0.81916	20
42	.90611	.80559	.90797	.80903	.90980	.81245	.91161	.81585	.91340	.81922	18
44+11 46	.90615 .90618	.80565 .80571	.90800 .90803	.80909 .80915	.90983	.81251 .81256	.91164 .91167	.81590 .81596	.91343 .91346	.81927 .81933	16 14
48+12	9.90621	0.80576	9.90806	0.80929	9.90989	0.81262	9.91170	0.81601	9.91349	0.81938	12
50	.90624	.80582	.90809	.80926	.90992	.81268	.91173	.81607	.91352	.81944	10
52+13	.90627	.80588	.90812	.80932	.90995	.81273	.91176	.81613	.91355	.81950	8
54	.90630	.80594	.90815	.80938	.90998	.81279	.91179	.81618	.91358	.81955	6
56+ 14 58	9.90633 9.90636	0.80599 0.80605	9.90818 9.90821	0.80943 0.80949	9.91001 9.91004	0.81285 0.81291	9.91182 9.91185	0.81624 0.81630	9.91361 9.91364	0.81961 0.81966	4 2
	15h	29m	15h	27m	15h	25m	15h	2.3m	15h	21m	
	_										
s '	8h 31m	127° 30′	8 h 33 m	128° 0′	8h 35m		8h 37m	129° 0′	8h 39m	129° 30′	s
s , 0+15	8h 31m :	127° 30′ 0.80611	8h 33m 9.90824	128° 0′ 0.80955	8h 35m 39.91007		8h 37m 9.91188	129° 0′ 0.81635	8h 39m 9.91367		s 60
0+ 15	9.90639 .90642	0.80611 .80617	9.90824 .90827	0.80955 .80960	9.91007 .91010	128° 30′ 0.81296 .81302	9.91188 .91191	129° 0′ 0.81635 .81641	9.91367 .91369	129° 30′ 0.81972 .81978	60 58
0+15 2 4+16	9.90639 .90642 .90646	0.80611 .80617 .80622	9.90824 .90827 .90830	0.80955 .80960 .80966	9.91007 .91010 .91013	128° 30′ 0.81296 .81302 .81308	9.91188 .91191 .91194	129° 0′ 0.81635 .81641 .81647	9.91367 .91369 .91372	129° 30′ 0.81972 .81978 .81983	60 58 56
0+15 2 4+16 6	9.90639 .90642 .90646 .90646	0.80611 .80617 .80622 .80628	9.90824 .90827 .90830 .90833	0.80955 .80960 .80966 .80972	9.91007 .91010 .91013 .91016	0.81296 .81302 .81308 .81313	9.91188 .91191 .91194 .91197	129° 0′ 0.81635 .81641 .81647 .81652	9.91367 .91369 .91372 .91375	129° 30′ 0.81972 .81978 .81983 .81989	60 58 56 54
0+15 2 4+16 6 8+17	9.90639 .90642 .90646 .90646 9.90652	0.80611 .80617 .80622 .80628 0.80634	9.90824 .90827 .90830 .90833 9.90836	0.80955 .80960 .80966 .80972 0.80978	9.91007 .91010 .91013 .91016 9.91019	128° 30′ 0.81296 .81302 .81308 .81313 0.81319	9.91188 .91191 .91194 .91197 9.91200	129° 0′ 0.81635 .81641 .81647 .81652 0.81658	9.91367 .91369 .91372 .91375 9.91378	129° 30′ 0.81972 .81978 .81983 .81989 0.81994	60 58 56 54 52
0+15 2 4+16 6	9.90639 .90642 .90646 .90646 9.90652 .90655 .90658	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645	9.90824 .90827 .90830 .90833 9.90836 .90840 .90843	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330	9.91188 .91191 .91194 .91197 9.91200 .91203 .91206	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005	58 56 54 52 50 48
0+15 2 4+16 6 8+17 10 12+18 14	9.90639 .90642 .90646 .90646 9.90652 .90655 .90658 .90661	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651	9.90824 .90827 .90830 .90833 9.90836 .90840 .90843 .90846	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336	9.91188 .91191 .91194 .91197 9.91200 .91203 .91206 .91209	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91387	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011	58 56 54 52 50 48 46
0+15 2 4+16 6 8+17 10 12+18 14 16+19	9.90639 .90642 .90646 .90646 9.90652 .90655 .90658 .90661 9.90664	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651	9.90824 .90827 .90830 .90833 9.90836 .90840 .90843 .90846 9.90849	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81000	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028 9.91031	0.81296 .81302 .81308 .81313 0.81313 .81325 .81330 .81336 0.81342	9.91188 .91191 .91194 .91197 9.91200 .91203 .91206 .91209 9.91212	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81680	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91387 9.91390	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017	58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18	9.90639 .90642 .90646 .90646 9.90652 .90655 .90658 .90661 9.90664	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 0.80657 .80663	9.90824 .90827 .90830 .90833 9.90836 .90840 .90843 .90846	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81006	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028	0.81296 .81302 .81308 .81313 0.81319 .81325 .81336 0.81342 .81347	9.91188 .91191 .91194 .91197 9.91200 .91203 .91206 .91209 9.91212 .91215	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81663 .81675 0.81680 .81686	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91387 9.91390 .91393	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011	58 56 54 52 50 48 46 44 42
0+15 2 4+16 6 8+17 10 12+18 14 16+19	9.90639 .90642 .90646 .90646 9.90652 .90655 .90658 .90661 9.90664	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651	9.90824 .90827 .90830 .90833 9.90836 .90840 .90843 .90849 .90852	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81000	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028 9.91031 .91034	0.81296 .81302 .81308 .81313 0.81313 .81325 .81330 .81336 0.81342	9.91188 .91191 .91194 .91197 9.91200 .91203 .91206 .91209 9.91212	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81680	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91387 9.91390	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21	9.90639 .90642 .90646 .90646 9.90652 .90655 .90658 .90661 9.90667 .90670 .90673	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651 0.80657 .80663 .80668 .80674	9.90824 .90827 .90830 .90833 9.90836 .90840 .90843 .90849 .90852 .90855 .90858	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81000 .81006 .81012 .81017	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028 9.91031 .91034 .91037 .91040	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81342 .81347 .81353 .81359 0.81364	9.91188 .91191 .91194 .91197 9.91200 .91203 .91206 .91209 9.91212 .91215 .91218 .91221	0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81680 .81686 .81692 .81697 0.81703	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91387 9.91390 .91393 .91396 .91399 9.91402	0.81972 .81978 .81983 .81989 0.81994 .82005 .82011 0.82017 .82022 .82028 .82033	58 56 54 52 50 48 46 44 42 40 38 36
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	9.90639 .90642 .90646 .90646 .90652 .90655 .90658 .90661 9.90664 .9067 .90673 9.90676 .90680	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651 0.80657 .80663 .80664 0.80680	9.90824 .90827 .90830 .90833 9.90836 .90840 .90844 9.90849 .90852 .90855 9.90858 9.90861	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81012 .81017 0.81023 .81029	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028 9.91031 .91034 .91040 9.91043 .91046	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 0.81364 .81359	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91218 .91221 9.91224 .91227	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81680 .81692 .81697 0.81703 .81708	9.91367 .91369 .91372 .91375 9.91378 .91384 .91387 9.91390 .91393 .91399 9.91402 .91405	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045	58 56 54 52 50 48 46 44 42 40 38 36 34
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22	9.90639 .90642 .90646 .90646 .90652 .90655 .90658 .90661 9.90667 .90670 .90673 .90680 .90683	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651 0.80657 .80663 .80664 0.80686 .80691	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90864	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81012 .81017 0.81023 .81029 .81035	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028 9.91031 .91034 .91037 .91040 9.91043 .91046 .91049	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 0.81342 .81347 .81353 0.81364 .81364 .81364 .81370	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91218 .91221 9.91224 .91227 .91230	0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81680 .81692 .81697 0.81703 .81708	9.91367 .91369 .91372 .91375 9.91378 .91381 .91387 9.91390 .91393 .91396 .91399 9.91402 .91405 .91408	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050	58 56 54 52 50 48 46 44 42 40 38 36 34 32
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30	9.90639 .90642 .90646 .90646 .90652 .90655 .90658 .90661 9.90664 .9067 .90673 9.90676 .90680	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651 0.80657 .80663 .80664 0.80680	9.90824 .90827 .90830 .90833 9.90836 .90840 .90844 9.90849 .90852 .90855 9.90858 9.90861	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81012 .81017 0.81023 .81029	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028 9.91031 .91034 .91040 9.91043 .91046	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 0.81364 .81359	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91218 .91221 9.91224 .91227	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81680 .81692 .81697 0.81703 .81708	9.91367 .91369 .91372 .91375 9.91378 .91384 .91387 9.91390 .91393 .91399 9.91402 .91405	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045	58 56 54 52 50 48 46 44 42 40 38 36 34
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34	9.90639 .90642 .90646 .90646 .90652 .90655 .90658 .90661 .90667 .90670 .90673 .90680 .90688 .90689 .90689 .90689	0.80611 .80617 .80622 .80628 0.80634 .80645 .80645 0.80657 .80663 .80663 .80664 0.80680 .80697 0.80690 0.80703 .80709	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90852 .90858 9.90861 .90864 .90867 .90870 .90873	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046	9.91007 .91010 .91013 .91016 9.91019 .91022 .91025 .91028 9.91031 .91034 .91040 9.91043 .91049 .91052 9.91055 .91058	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81370 .81376 .81387 .81381	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91218 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81680 .81686 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731	9.91367 .91369 .91372 .91375 9.91378 .91384 .91387 9.91390 .91393 .91396 .91399 9.91402 .91405 .91408 .91411 9.91414	0.81972 .81978 .81983 .81989 0.81994 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82056 0.82061	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90661 9.90670 .90673 9.90676 .90680 .90680 .90688 .90689 .90689	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80657 .80663 .80668 .80674 0.80680 .80697 0.80697 0.80703 .80709 .80714	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90855 9.90861 .90864 .90867 .90870 9.90876	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81017 0.81023 .81017 0.81023 .81040 0.81046 .81052 .81052	9.91007 .91010 .91013 .91016 .91019 .91022 .91025 .91028 9.91031 .91034 .91040 .91040 .91049 .91052 9.91055 .91058 .91061	0.81296 .81302 .81308 .81313 0.81319 .81325 .81336 0.81342 .81347 .81353 0.81346 .81359 0.81364 .81376 .81376 .81387 .81387 .81387 .81387 .81389 .81398	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91218 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81680 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91387 9.91390 .91393 .91399 9.91402 .91405 .91408 .91411 9.91414 .91417 .91420	129° 30′ 0.81972 .81978 .81983 .81989 0.81994 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050 .82067 .82067 .82067	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90667 .90670 .90673 .90676 .90680 .90683 .90689 .90692 .90692 .90695 .90698	0.80611 .80617 .80622 .80628 0.80634 .80640 .80657 .80657 .80663 .80668 .80674 0.80680 .80691 .80697 0.80703 .80709 .80714	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 9.90873 .90876	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81052 .81057 .81057	9.91007 91010 91013 91016 9.91019 .91022 .91025 .91028 9.91031 .91034 .91040 9.91043 .91046 .91049 .91052 9.91055 .91058 .91061 .91064	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81370 .81376 .81381 0.81387 .81388 .81398 .81398 .81404	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245	129° 0′ 0.81635 .81641 .81657 .81652 0.81658 .81663 .81669 .81675 0.81686 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742	9.91367 .91369 .91372 .91375 9.91378 .91381 .91381 .91389 .91390 .91399 9.91402 .91405 .91408 .91411 9.91414 .91417 .91420 .91423	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050 .82061 .82061 .82067 .82067	50 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90667 .90670 .90673 .90676 .90680 .90683 .90689 .90692 .90695 .90698 .90698	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80651 0.80657 .80663 .80668 .80674 0.80680 .80691 .80697 0.80703 .80709 .80714 .80720	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 9.90879 .90882	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81057 .81057 .81063	9.91007 .91010 .91013 .91016 .91019 .91022 .91025 .91028 9.91031 .91034 .91037 .91040 9.91043 .91049 .91052 9.91055 .91058 .91061 .91064 9.91067	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81347 .81353 .81359 0.81364 .81376 .81376 .81381 0.81387 .81389 .81398 .81404	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91213 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91242 .91245 9.91248	129° 0′ 0.81635 .81641 .81657 .81658 .81663 .81669 .81675 0.81686 .81692 .81697 0.81703 .81703 .81714 .81720 0.81725 .81731 .81737 .81737	9.91367 .91369 .91372 .91375 9.91378 .91381 .91387 9.91390 .91393 .91396 .91399 9.91402 .91405 .91411 9.91414 .91417 .91423 9.91423	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050 .82056 0.82061 .82067 .82072 .82072	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 28 24 22 20
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90667 .90670 .90673 .90676 .90680 .90683 .90689 .90692 .90692 .90695 .90698	0.80611 .80617 .80622 .80628 0.80634 .80640 .80657 .80657 .80663 .80668 .80674 0.80680 .80691 .80697 0.80703 .80709 .80714	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 9.90873 .90876	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81006 .81012 .81017 0.81023 .81040 0.81046 .81052 .81057 .81063 0.81068 .81074 .81063	9.91007 91010 91013 91016 9.91019 .91022 .91025 .91028 9.91031 .91034 .91040 9.91043 .91046 .91049 .91052 9.91055 .91058 .91061 .91064	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81370 .81376 .81381 0.81387 .81388 .81398 .81398 .81404	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245	129° 0′ 0.81635 .81641 .81657 .81652 0.81658 .81663 .81669 .81675 0.81686 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742	9.91367 .91369 .91372 .91375 9.91378 .91381 .91381 .91389 .91390 .91399 9.91402 .91405 .91408 .91411 9.91414 .91417 .91420 .91423	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050 .82061 .82061 .82067 .82067	50 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46	9.90639 .90642 .90646 .90646 .90655 .90655 .90651 .90667 .90670 .90673 .90686 .90686 .90689 .90689 .90692 .90692 .90698 .90698 .90694 .90701 .90701	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 0.80657 .80663 .80668 .80674 0.80697 0.80697 0.80697 0.80720 0.80720 0.80721 .80721 .80721 .80721 .80731 .80731	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 .90870 .90879 .90878 .90882 9.90885 .90885 .90885 .90885	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81052 .81057 .81063 0.81068 .81074 .81080 .81086	9.91007 91010 91013 91016 9.91019 91022 91025 91028 9.91031 91034 91037 91040 9.91043 91049 91052 9.91055 91055 91055 91061 91064 9.91067 91074 91074	0.81296 .81302 .81308 .81313 0.81319 .81325 .81336 0.81342 .81347 .81353 0.81346 .81370 .81376 .81381 0.81387 .81381 0.81387 .81381 0.81404 0.81409 .81415 .81421	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245 9.91248 .91251 .91254	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81680 .81686 .81692 .81697 0.81703 .81708 .81714 .81725 .81731 .81737 .81742 0.81748 .81759 .81759 .81765	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91387 9.91390 .91393 .91396 .91399 9.91402 .91405 .91411 9.91414 .91417 .91420 .91423 9.91426 .91429 .91432 .91435	0.81972 .81978 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82033 0.82039 .82045 .82050 .82050 .82050 .82050 .82050 .82050 .82067 .82067 .82072 .82072 .82078	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90667 .90670 .90673 .90680 .90683 .90689 .90692 .90692 .90695 .90698 .90701 .90704 .90701 .90710 .90710	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80657 .80663 .80663 .80674 0.80686 .80691 .80697 0.80709 .80714 .80720 0.80726 .80731 .80737 .80743 0.80749	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 9.90873 .90876 .90879 .90888 .90888 .90888 .90889 .90892	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81006 .81012 .81017 0.81023 .81029 .81040 0.81046 .81057 .81057 .81063 0.81068 .81074 .81086 0.81099	9.91007 .91010 .91013 .91016 .91019 .91022 .91025 .91028 .9.91031 .91034 .91037 .91040 .91049 .91052 .9.91055 .91055 .91058 .91061 .91064 .91071 .91077 .91077 .91077	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81347 .81353 .81359 0.81364 .81376 .81376 .81381 0.81387 .81398 .81404 0.81409 .81415 .81426 0.81432	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245 9.91248 .91251 .91257 9.91260	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81686 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742 0.81748 .81753 .81753 .81755 0.81776	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91389 .91390 .91393 .91396 .91405 .91405 .91414 .91414 .91417 .91420 .91423 .91429 .91429 .91435 .91435 .91437	0.81972 .81978 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050 .82056 0.82061 .82067 .82072 .82072 .82078 0.82084 .82089 .82095 .82100 0.82106	58 56 54 52 50 52 50 48 46 44 42 40 38 38 36 34 32 20 18 16 11 12
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	9.90639 .90642 .90646 .90646 .90655 .90658 .90661 9.90664 .90667 .90670 .90673 9.90686 .90686 9.90689 .90695 .90695 .90695 .90698 9.90701 .90701 .90707 .90710 9.90714	0.80611 .80617 .80622 .80628 0.80634 .80645 .80651 0.80657 .80663 .80668 .80674 0.80680 .80697 0.80703 .80709 .80714 .80720 0.80726 .80731 .80737 .80743 .80743 .80749 .80749	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90864 .90879 .90870 9.90879 .90879 .90879 .90882 9.90888 .90895 .90895 .90895	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81052 .81057 .81063 0.81068 .81074 .81080 .81092 .81097	9.91007 91010 91013 91016 9.91019 .91022 .91025 .91028 .91031 .91034 .91037 .91040 9.91043 .91046 .91049 .91052 9.91055 .91058 .91061 .91064 9.91067 .91071 .91074 .91077 9.91080 .91083	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81376 .81376 .81381 0.81387 .81381 0.81387 .81494 .81404 0.81409 .81415 .81421 .81426 0.81432	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91213 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245 9.91245 9.91248 .91251 .91254 .91257 .91256 .91260 .91263	129° 0′ 0.81635 .81641 .81647 .81658 .81663 .81669 .81675 0.81686 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742 0.81748 .81753 .81759 .81765 0.81776	9.91367 .91369 .91372 .91375 9.91378 .91384 .91387 9.91390 .91393 .91399 9.91402 .91405 .91411 9.91414 .91417 .91420 .91423 9.91423 9.91426 .91429 .91432 .91437 .91440	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82056 0.82061 .82067 .82078 0.82084 .82089 .82099 .82095 .82100	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 22 22 20 18 16 11 11 11
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90667 .90670 .90673 .90680 .90683 .90689 .90692 .90692 .90695 .90698 .90701 .90704 .90701 .90710 .90710	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80657 .80663 .80663 .80674 0.80686 .80691 .80697 0.80709 .80714 .80720 0.80726 .80731 .80737 .80743 0.80749	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 9.90861 .90864 .90867 .90870 .90879 .90879 .90882 .90888 .90895 .908988 .90892 .90895 .90901 .90904	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81000 .81006 .81012 .81017 0.81023 .81040 .81046 .81052 .81057 .81063 0.81046 .81052 .81057 .81063 .81068 .81074 .81096 .81097 .81097 .81097 .81097	9.91007 .91010 .91013 .91016 .91019 .91022 .91025 .91028 .9.91031 .91034 .91037 .91040 .91049 .91052 .9.91055 .91055 .91058 .91061 .91064 .91071 .91077 .91077 .91077	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81370 .81381 0.81387 .81381 0.81387 .81392 .81398 .81404 0.81409 .81415 .81421 .81426 0.81432 .81438	9.91188 .91191 .91194 .91197 9.91200 .91206 .91209 9.91212 .91215 .91213 9.91224 .91227 .91230 9.91236 .91239 .91242 .91245 9.91246 .91257 9.91260 .91263 .91257	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81669 .81675 0.81680 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742 0.81748 .81753 .81759 .81765 0.81776 .81776	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91389 .91390 .91393 .91396 .91405 .91405 .91414 .91414 .91417 .91420 .91423 .91429 .91429 .91435 .91435 .91437	0.81972 .81978 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050 .82056 0.82061 .82067 .82072 .82072 .82078 0.82084 .82089 .82095 .82100 0.82106	58 56 54 52 50 52 50 48 46 44 42 40 38 38 36 34 32 20 18 16 11 12
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 48+27 50 52+28	9.90639 .90642 .90646 .90646 .90652 .90655 .90658 .90661 9.90667 .90670 .90673 9.90686 .90689 .90689 .90698 .90698 .90698 .90701 .90704 .90707 .90710 .90710	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 0.80657 .80663 .80668 .80674 0.80697 0.80697 0.80709 .80714 .80720 0.80726 .80731 .80731 .80743 0.80749 .80754 .80760 .80766 0.80772	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90864 .90879 .90870 9.90879 .90879 .90879 .90882 9.90888 .90895 .90895 .90895	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81052 .81057 .81063 0.81068 .81074 .81080 .81092 .81097	9.91007 .91010 .91013 .91016 9.91019 .91025 .91025 .91028 9.91031 .91034 .91037 .91040 9.91043 .91049 .91055 .91055 .91058 .91061 .91064 9.91067 .91067 .91077 .91077 .91080 .91083 .91086	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81376 .81376 .81381 0.81387 .81381 0.81387 .81494 .81404 0.81409 .81415 .81421 .81426 0.81432	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91213 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245 9.91245 9.91248 .91251 .91254 .91257 .91256 .91260 .91263	129° 0′ 0.81635 .81641 .81647 .81658 .81663 .81669 .81675 0.81686 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742 0.81748 .81753 .81759 .81765 0.81776	9.91367 .91369 .91372 .91375 9.91378 .91384 .91387 9.91390 .91393 .91393 .91393 .91405 .91405 .91405 .91411 9.91414 .91417 .91420 .91423 .91423 .91435 9.91437 .91435 9.91437 .91444 .91443	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82033 0.82039 .82045 .82050 .82061 .82060 .82061 .82067 .82072 .82072 .82078 0.82084 .82089 .82089 .82095 .82112 .82117 .82117	58 56 52 50 48 46 44 42 42 42 38 36 34 32 30 28 26 22 20 20 18 16 14 12 10 10 10 10 10 10 10 10 10 10
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 46 48+27 50 52+28 54 56+29 58	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90667 .90670 .90673 .90676 .90680 .90689 .90689 .90692 .90692 .90695 .90701 .90704 .90707 .90710 .90717 .90710 .90723 .90723 .90723	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 .80657 .80663 .80668 .80674 0.80680 .80697 0.80709 .80714 .80720 0.80726 .80731 .80737 .80743 0.80749 .80766 0.80766	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 9.90873 .90876 .90879 .90882 9.90885 .90888 .90892 .90892 .90894 .90907 .90904	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 .80995 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81052 .81057 .81063 0.81068 .81074 .81080 0.81092 .81097 .81103 0.81109	9.91007 91010 91013 91016 9.91019 91022 91025 91028 9.91031 91034 91037 91040 9.91043 91049 91052 9.91055 91055 91058 91061 91064 9.91067 91077 91074 91077 9.91080 91083 91089 91092 91095	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81347 .81353 .81359 0.81364 .81376 .81376 .81381 0.81387 .81381 0.81387 .81398 .81404 0.81409 .81415 .81426 0.81432 .81438 .81443 .81449 0.81445 .81449 0.81445 .81449	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245 9.91248 .91251 .91257 9.91260 .91263 .91263 .91268 9.91271 .91274	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81663 .81669 .81675 0.81686 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742 0.81748 .81753 .81753 .81765 0.81766 .81781 .81787 0.81798	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91389 .91390 .91399 9.91402 .91405 .91411 9.91414 .91417 .91420 .91423 9.91425 .91435 9.91437 .91446 .91443 .91444 .91444 .91444 .91443 .91444 .91444 .91445	0.81972 .81978 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82050 .82056 0.82061 .82067 .82067 .82067 .82069 .82058 .82050 .82050 0.82061 .82061 .82062 .82050 .82061 .82063 .82050 .82064 .82069 .82065 .82065 .82065 .82061 .82067 .82067 .82067 .82067 .82067 .82067 .82067 .82067 .82068 .82100 0.82106 .82112 .82117 .82123 0.82128 .82134	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 14 12 10 8 6 44 42 22 20 14 14 16 16 16 16 16 16 16 16 16 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 48+27 50 52+28 54 56+29	9.90639 .90642 .90646 .90646 .90655 .90655 .90655 .90661 9.90667 .90670 .90673 .90686 .90686 9.90689 .90689 .90692 .90695 .90698 .90701 .90710 .90711 .90710 .90714 .90710 .90720 .90723 .90723	0.80611 .80617 .80622 .80628 0.80634 .80640 .80645 0.80657 .80663 .80668 .80674 0.80697 0.80697 0.80709 .80714 .80720 0.80726 .80731 .80731 .80743 0.80749 .80754 .80760 .80766 0.80772	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 .90870 .90876 .90879 .90878 .90885 .90885 .90892 .90895 .90898 .90901 .90904	0.80955 .80960 .80966 .80972 0.80978 .80983 .80989 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81052 .81057 .81063 0.81068 .81074 .81080 .81080 .81080 .81092 .81097 .81090 .81090 .81091 .81090 .81091 .81090 .81092	9.91007 91010 91013 91016 9.91019 91022 91025 9.91031 91034 91037 91040 9.91043 91049 91052 9.91055 91055 91061 91064 9.91067 91071 91074 91077 9.91080 91089 9.91092	0.81296 .81302 .81303 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81370 .81387 .81381 0.81387 .81398 .81404 0.81409 .81415 .81421 .81421 .81424 0.81432 .81438 .81444 0.81445	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91221 9.91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245 9.91248 .91251 .91254 .91257 9.91260 .91263 .91263 .91263	129° 0′ 0.81635 .81641 .81652 0.81658 .81663 .81669 .81675 0.81680 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742 0.81748 .91759 .81759 .81776 .81776 .81776 .81776 .81781 .81787	9.91367 .91369 .91372 .91375 9.91378 .91384 .91387 9.91390 .91393 .91399 9.91402 .91405 .91411 9.91414 .91417 .91420 .91423 9.91426 .91429 .91432 .91432 .91437 .91440 .91443 .91444 .91444 .91444 .91444 .91444 .91444 .91444	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82033 0.82039 .82045 .82050 .82061 .82060 .82061 .82067 .82072 .82072 .82078 0.82084 .82089 .82089 .82095 .82112 .82117 .82117	58 56 54 52 50 48 46 44 40 38 36 32 30 28 26 22 20 18 11 12 10 8 6
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 46 48+27 50 52+28 54 56+29 58	9.90639 .90642 .90646 .90646 .90655 .90655 .90658 .90667 .90670 .90673 .90676 .90680 .90689 .90689 .90692 .90692 .90695 .90701 .90704 .90707 .90710 .90717 .90710 .90723 .90723 .90723	0.80611 .80617 .80622 .80628 0.80634 .80645 .80645 .80657 .80663 .80668 .80697 0.80680 .80697 0.80703 .80709 .80714 .80720 0.80731 .80737 .80743 0.80749 .80754 .80754 0.80766 0.80772 .80777 0.80783	9.90824 .90827 .90830 .90833 9.90836 .90840 .90849 .90852 .90855 .90858 9.90861 .90867 .90870 9.90873 .90876 .90879 .90882 9.90885 .90888 .90892 .90892 .90894 .90907 .90904	0.80955 .80960 .80978 .80983 .80983 .80989 .80995 0.81000 .81006 .81012 .81017 0.81023 .81029 .81035 .81040 0.81046 .81052 .81057 .81063 0.81068 .81074 .81080 .81086 0.81092 .81097 .81083 .81097 .81103 .81109 0.81114	9.91007 91010 91013 91016 9.91019 91022 91025 91028 9.91031 91034 91037 91040 9.91043 91049 91052 9.91055 91055 91058 91061 91064 9.91067 91077 91074 91077 9.91080 91083 91089 91092 91095	0.81296 .81302 .81308 .81313 0.81319 .81325 .81330 .81336 0.81342 .81347 .81353 .81359 0.81364 .81370 .81381 0.81387 .81381 0.81387 .81392 .81404 0.81409 .81415 .81421 .81426 0.81432 .81438 .81449 0.81455 .81466 0.81466	9.91188 .91191 .91194 .91197 9.91200 .91203 .91209 9.91212 .91215 .91221 9.91224 .91227 .91230 .91233 9.91236 .91239 .91242 .91245 9.91248 .91251 .91257 9.91260 .91263 .91263 .91268 9.91271 .91274	129° 0′ 0.81635 .81641 .81647 .81652 0.81658 .81669 .81675 0.81680 .81692 .81697 0.81703 .81708 .81714 .81720 0.81725 .81731 .81737 .81742 0.81748 .81753 .81759 .81765 0.81776 .81776 .81776 .81781 .81787 0.81793 .81798	9.91367 .91369 .91372 .91375 9.91378 .91381 .91384 .91389 .91390 .91399 9.91402 .91405 .91411 9.91414 .91417 .91420 .91423 9.91425 .91435 9.91437 .91446 .91443 .91444 .91444 .91444 .91443 .91444 .91444 .91445	0.81972 .81978 .81983 .81989 0.81994 .82000 .82005 .82011 0.82017 .82022 .82028 .82033 0.82039 .82045 .82056 0.82061 .82067 .82072 .82072 .82078 0.82084 .82089 .82086 .82112 .82117 .82123 0.82128 .82134 0.82139	58 56 52 50 48 46 44 42 40 38 36 32 30 28 26 27 20 18 16 11 12 10 8 6 4 4 2 2 2 2 2 2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4

	oh tom	1909.0/	oh tom	1000 00/	oh 11m	1010.0/	oh tom	1010 001	oh tom	4000.04	-
		130° 0′		130° 30′		131° 0′	8h 46m		8h 48m		
s '	Log. Hav.					Nat. Hav.		Nat. Hav.	Log. Hav.	Nat. Hav.	S
2 0	9.91455 $.91458$	0.82139 .82145	9.91631 $.91634$	0.82472 .82478	$9.91805 \\ .91807$	0.82803 .82808	9.91976 $.91979$	0.83131 .83136	9.92146 $.92149$	0.83457 .83462	60 58
4+1	.91461	.82151	.91637	82483	.91810	.82814	.91982	.83142	.92152	.83467	56
6	.91464	.82156	.91640	.82489	.91813	.82819	.91985	.83147	.92154	.83473	54
8+ 2	9.91467	0.82162 .82167	9.91643	0.82495 .82500	9.91816 $.91819$	0.82825 .82830	9.91988 $.91991$	0.83153 .83158	9.92157 $.92160$	0.83478 .83484	52 50
12+4	.91473	.82173	.91648	.82506	.91822	.82836	.91993	.83164	.92163	.83489	48
14 16+ 4	9.91476 9.91479	.82178 0.82184	91651 9.91654	.82511 0.82517	91825 9.91828	.82841 0.82847	9.91996 9.91999	.83169 0.83175	92166 9.92169	.83494 0.83500	46
18	.91482	.82189	.91657	.82522	.91830	.82852	.92002	.83180	.92171	.83505	44 42
20+ 5	.91485	.82195	.91660	.82528	.91833	.82858	.92005	.83185	.92174	.83511	40
$\frac{22}{24+6}$	$\frac{.91488}{9.91490}$	$\frac{.82200}{0.82206}$	$\frac{.91663}{9.91666}$	$\frac{.82533}{0.82539}$	91836 9.91839	$\frac{.82863}{0.82869}$	$\frac{.92008}{9.92010}$.83191 0.83196	$\frac{.92177}{9.92180}$.83516	38 36
26	.91493	.82212	.91669	.82544	.91842	.82874	.92013	.83202	.92183	.83527	34
28+ 7	.91496	.82217	.91672	.82550	.91845	.82880	.92016	.83207	.92185	.83532	32
30 32+ 8	9.91499 9.91502	.82223 0.82228	91674 9.91677	.82555 0.82561	.91848 9.91851	.82885 0.82891	92019 9.92022	.83213 0.83218	.92188 9.92191	.83538 0.83543	30 28
34	.91505	.82234	.91680	.82566	.91853	.82896	.92025	.83224	.92194	.83548	26
36+ 9 38	.91508 .91511	.82240 .82245	.91683 $.91686$.82572 .82577	.91856 .91859	.82902 .82907	.92027 $.92030$.83229 .83234	.92197	.83554 .83559	24
40+10	9.91514	0.82251	9.91689	0.82583	9.91862	0.82913	9.92033	0.83240	9.92202	0.83564	20
42	.91517	.82256	.91692	.82588	.91865	.82918	.92036	.83245	.92205	.83570	18
44 +11 46	.91520 $.91523$.82262 .82267	.91695	.82594 .82599	.91868 .91871	.82924 .82929	.92039 .92042	.83251 .83256	.92208 .92211	.83575 .83581	16 14
48+12	9.91526	0.82273	9.91701	0.82605	9.91874	0.82934	9.92044	0.83262	9.92213	0.83586	12
50 52+ 13	.91529 .91532	.82278 .82284	.91703 .91706	.82610 .82616	.91876 .91879	.82940 .82945	.92047 .92050	.83267 .83272	.92216 .92219	.83591	10
54	.91534	.82290	.91709	.82621	.91882	.82951	.92053	.83278	.92222	.83602	6
56+14	9.91537	0.82295	9.91712	0.82627	9.91885	0.82956	9.92056	0.83283	9.92225	0.83608	4
58	9.91540	0.82301	9.91715	0.82632	9.91888	0.82962	9.92059	0.83289	9.92227	0.83613	2
	15h	19m	15h	17m	15h	1.5m	15h	1 9m	15h	11m	1
		-						10	10	11	-
s ,	8h 41m	130° 0′		130° 30′		131° 0′		131° 30:		132° 0′	s
0+15	9.91543	130° 0′ 0.82306	8h 43m 9.91718	130° 30′ 0.82638	8h 45m 9.91891	131° 0′ 0.82967	8h 47m 9.92061	131° 30:	8h 49m 9.92230	132° 0′ 0.83618	60
0+15 2	9.91543 .91546	130° 0′ 0.82306 .82312	8h 43m 9.91718 .91721	130° 30′ 0.82638 .82644	8h 45m 9.91891 .91894	131° 0′ 0.82967 .82973	8h 47m 9.92061 .92064	131° 30: 0.83294 .83300	8h 49m 9.92230 .92233	132° 0′ 0.83618 .83624	60 58
0+15 2 4+16 6	9.91543	130° 0′ 0.82306	8h 43m 9.91718	130° 30′ 0.82638	8h 45m 9.91891	131° 0′ 0.82967	8h 47m 9.92061	131° 30:	8h 49m 9.92230	132° 0′ 0.83618	60
0+15 2 4+16 6 8+17	9.91543 .91546 .91549 .91552 9.91555	130° 0′ 0.82306 .82312 .82317 .82323 0.82328	8h 43m 9.91718 .91721 .91724 .91727 9.91730	130° 30′ 0.82638 .82644 .82649 .82655 0.82660	8h 45m 9.91891 .91894 .91896 .91899 9.91902	131° 0′ 0.82967 .82973 .82978 .82984 0.82989	8h 47m 9.92061 .92064 .92067 .92070 9.92073	131° 30: 0.83294 .83300 .83310 0.83316	8h 49m 9.92230 .92233 .92236 .92239 9.92241	132° 0′ 0.83618 .83624 .83629 .83635 0.83640	60 58 56 54 52
0+15 2 4+16 6	9.91543 .91546 .91549 .91552	130° 0′ 0.82306 .82312 .82317 .82323	8h 43m 9.91718 .91721 .91724 .91727	0.82638 .82644 .82649 .82655	8h 45m 9.91891 .91894 .91896 .91899	131° 0′ 0.82967 .82973 .82978 .82984	8h 47m 9.92061 .92064 .92067 .92070	131° 30: 0.83294 .83300 .83305 `.83310 0.83316 .83321	8h 49m 9.92230 .92233 .92236 .92239	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645	58 56 54 52 50
0+15 2 4+16 6 8+17 10 12+18 14	9.91543 .91546 .91549 .91552 9.91555 .91558 .91561 .91564	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345	8ħ 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738	0.82638 .82644 .82649 .82655 0.82660 .82666 .82671 .82677	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911	131° 0′ 0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83006	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92078 .92081	131° 30: 0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .8332	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92244 .92247 .92250	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651	58 56 54 52 50 48 46
0+15 2 4+16 6 8+17 10 12+18 14 16+19	9.91543 .91546 .91549 .91552 9.91555 .91558 .91561 .91564 9.91567	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351	8ħ 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741	0.82638 .82644 .82649 .82655 0.82660 .82666 .82671 .82677 0.82682	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914	131° 0′ 0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83006 0.83011	8h 47m 9.92061 .92064 .92070 9.92073 .92076 .92078 .92081 9.92084	131° 30: 0.83294 .83300 .83310 0.83316 .83321 .83327 .8332 0.83337	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92244 .92247 .92250 9.92253	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83656	58 56 54 52 50 48 46 44
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20	9.91543 .91546 .91549 .91552 9.91555 .91563 .91564 9.91567 .91570 .91573	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82362	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91744 .91747	0.82638 .82644 .82649 .82655 0.82660 .82666 .82677 0.82682 .82688 .82693	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91916 .91919	0.82967 .82973 .82978 .82984 0.82989 .82995 .83006 0.83011 .83016 .83022	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92078 .92084 .92084 .92087 .92090	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83343 .83348	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92244 .92247 .92250 9.92253 .92255 .92258	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83656 0.83661 .83667 .83667	58 56 54 52 50 48 46 44 42 40
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22	9.91543 .91546 .91549 .91552 9.91555 .91558 .91561 .91564 9.91567 .91570 .91573 .91575	0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82362 .82362	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91744 .91747	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82693 .82699	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91916 .91919 .91922	0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83006 0.83011 .83016 .83022 .83027	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92084 9.92084 .92087 .92090 .92090	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83348	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92244 .92247 .92250 9.92253 .92255 .92258 .92261	0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83656 0.83661 .83667 .83672	58 56 54 52 50 48 46 44 42 40 38
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	9.91543 .91546 .91549 .91552 9.91555 .91563 .91564 9.91567 .91570 .91573	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82362	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91744 .91747	0.82638 .82644 .82649 .82655 0.82660 .82666 .82677 0.82682 .82688 .82693	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91914 .91914 .91916 .91919 .91922 9.91925 .91928	0.82967 .82973 .82978 .82984 0.82989 .82995 .83006 0.83011 .83016 .83022	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92078 .92081 9.92084 .92087 .92090 .92093 9.92093 9.92093	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83343 .83348	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92244 .92247 .92250 9.92253 .92255 .92258	0.83618 .83624 .83629 .83635 0.83640 .83645 .83656 0.83661 .83667 .83678 0.83688	58 56 54 52 50 48 46 44 42 40
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91575 9.91581 .91581	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82362 .82367 0.82373 .82378	8h 43m 9.91718 .91721 .91727 9.91730 .91732 .91735 .91741 .91744 .91747 .91750 9.91753 .91756 .91758	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82693 .82699 0.82704 .82710	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91916 .91919 .91922 9.91925 .91928 .91931	0.82967 .82973 .82978 .82978 .82984 0.82989 .82995 .83006 0.83011 .83016 .83022 .83027 0.83038 .83038	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92081 9.92084 .92087 .92090 .92093 9.92093 9.92098 .92098	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83354 0.83359 .83365 .83370	8h 49m 9.92230 92233 92239 9.92241 92244 92247 92255 9.92253 92255 92258 92261 9.92264	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83667 .83672 .83673 0.83683 .83688 .83694	58 56 54 52 50 48 46 44 42 40 38 36 34 32
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 9.91575 9.91578	0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82362 .82367	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91735 .91738 9.91741 .91744 .91747 .91750 9.91753 .91756	0.82638 .82644 .82649 .82655 0.82660 .82667 .82677 0.82682 .82688 .82693 0.82704 .82710	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91914 .91914 .91916 .91919 .91922 9.91925 .91928	0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83011 .83016 .83022 .83027 0.83033 .83038	8h 47m 9.92061 .92064 .92067 .92076 .92076 .92087 .92081 9.92084 .92087 .92090 .92093 9.92095 .92098 .92101 .92104	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83354 0.83359	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92244 .92247 .92250 9.92253 .92255 .92255 .92261 9.92264 .92266	132° 0′ 0.83618 .83624 .83629 .83635 0.83645 .83645 .83667 .83667 .83672 .83683 .83688 .83694	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34	9.91543 .91546 .91549 .91552 9.91555 .91558 .91561 .91564 9.91567 .91570 .91573 .91575 9.91578 .91581 .91584 .91584 .91590 .91590	0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82362 .82367 0.82373 .82378 .82384 .82339 0.82395 .82389	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91747 .91750 9.91753 .91758 .91756 .91758 .91761 9.91764	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82693 .82699 0.82704 .82710 .82715 .82721	8h 45m 9.91891 .91894 .91896 .91899 9.91905 .91905 .91908 .91911 9.91914 .91919 .91922 9.91925 .91928 .91931 .91934 9.91936 .91939	0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83016 .83012 .83022 .83027 0.83033 .83044 0.83049 0.83055 .83060	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92084 .92087 .92090 .92093 9.92095 .92101 .92104 9.92107	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83354 0.83359 .83365 .83370 .83370	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92247 .92250 9.92253 .92255 .92258 .92261 9.92264 .92269 .92272 9.92272 9.92275	0.83618 .83624 .83629 .83635 0.83640 .83645 .83656 0.83661 .83667 .83678 0.83683 .83694 .83699 0.83704	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91575 9.91578 .91581 .91584 .91587 9.91593 .91593	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82367 0.82373 .82378 .82384 .82389 0.82395 .82400 .82406	8h 43m 9.91718 .91721 .91727 9.91730 .91732 .91735 .91738 9.91741 .91744 .91747 .91750 9.91753 .91756 .91756 .91756 .91761 9.91764 .91767 .91767	0.82638 .82644 .82649 .82655 0.82660 .826671 .82677 0.82682 .82699 0.82704 .82710 .82715 .82721 0.82726 .82732	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91916 .91919 .91922 9.91925 .91928 .91931 .91934 9.91936 .91939 .91939	0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 0.83011 .83016 .83022 .83027 0.83033 .83044 .83049 0.83055 .83066	8h 47m 9.92061 9.92064 9.92070 9.92073 9.92076 9.92078 9.92084 9.92084 9.92093 9.92093 9.92093 9.92101 9.92104 9.92107	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83343 .83348 .83354 0.83359 .83365 .83370 .83375 0.83381	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92253 9.92253 9.92253 9.92264 9.92264 9.92269 9.92275 9.92275 9.92278 9.92278	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83651 .83656 0.83661 .83667 .83672 .83678 0.83688 .83699 0.83704 .83710	58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91575 9.91581 .91584 .91587 9.91590 .91593 .91596 .91599 9.91602	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82367 0.82373 .82378 .82384 .82389 0.82395 .82400 .82406 .82412	8h 43m 9.91718 .91721 .91727 9.91730 .91735 .91738 9.91741 .91747 .91750 9.91753 .91758 .91761 9.91764 .91767 .91770 .91773 .91770	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82693 .82699 0.82704 .82715 .82721 0.82726 .82732 .82732 .82732 .82733 .82743 0.82748	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91916 .91919 .91922 9.91925 .91928 .91931 .91934 9.91936 .91939 .91942 .91945 .91948	0.82967 .82973 .82978 .82989 .82995 .83000 .83006 0.83011 .83016 .83022 .83027 0.83033 .83044 .83049 0.83055 .83066 .83071 0.83077	8h 47m 9.92061 .92064 .92067 .92076 .92076 .92078 .92081 9.92087 .92090 .92093 9.92093 9.92101 .92104 9.92107 .92112 .92115	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83332 0.83343 .83348 .83354 0.83359 .83365 .83370 0.83375 0.83381 .83386 .83392 .83397	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92255 9.92255 9.92258 9.92261 9.92264 9.92269 9.92272 9.92275 9.92278 9.92278 9.92283 9.92283	132° 0′ 0.83618 .83624 .83629 .83635 0.83645 .83645 .83667 .83667 .83678 0.83683 .83694 .83699 0.83704 .83715 .83720 0.83726	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42	9.91543 .91546 .91549 .91552 9.91555 .91561 .91564 9.91567 .91573 .91575 9.91578 .91581 .91581 .91587 9.91590 .91593 .91590 .91599 9.91602 .91605	0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82362 .82367 0.82373 .82373 .82378 .82384 .82399 0.82395 .82400 .82412 0.82417 .82423	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91747 .91750 9.91753 .91756 .91758 .91761 9.91764 .91773 9.91773 9.91773 9.91773	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82693 .82699 0.82704 .82710 .82715 .82721 0.82726 .82732 .82732 .82733 .82733 0.82748 .82743	8h 45m 9.91891 9.91894 9.91896 9.91902 9.91905 9.91914 9.91916 9.91919 9.91925 9.91925 9.91936 9.91934 9.91936 9.91945 9.91948 9.91948	0.82967 .82973 .82978 .82989 .82995 .82995 .83000 .83006 0.83011 .83016 .83022 .83027 0.83033 .83038 .83049 0.83055 .83060 .83060 .83067 .83071	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92084 .92087 .92090 .92093 9.92095 .92098 .92101 .92104 9.92107 .92109 .92112 .92115 9.92118 .92118	0.83294 .83300 .83305 .83310 0.83316 .83327 .83327 .83332 0.83354 0.83354 0.83354 0.83359 .83365 .83375 0.83375 0.83381 .83386 .83392 0.83397	8h 49m 9.92230 .92233 .92236 .92239 9.92241 .92247 .92250 9.92253 .92255 .92258 .92261 9.92264 .92269 .92272 9.92272 9.92272 9.92278 .92280 .92283 9.92283	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83667 0.83667 0.83683 .83698 .83699 0.83704 .83710 .83710 .83720 0.83726 .83720	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25	9.91543 .91546 .91549 .91552 9.91555 .91558 .91561 .91564 9.91567 .91570 .91573 .91575 9.91578 .91581 .91584 .91584 .91590 .91593 .91590 .91590 .91602 .91605 .91608	0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82362 .82367 0.82373 .82378 .82384 .82339 0.82295 .82400 .82412 0.82417 .82423 .82428	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91747 .91750 9.91753 .91756 .91753 .91764 .91767 .91770 .91773 .91776 .91779 .91779 .91779 .917782	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82693 .82699 0.82704 .82715 .82712 0.82726 .82732 .82733 .82743 0.82748 .82743 .82743	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91914 .91916 .91919 .91922 9.91925 .91928 .91931 .91936 .91939 .91942 .91945 9.91948 .91951 .91954	0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83016 .83016 .83022 .83027 0.83033 .83049 0.83055 .83060 .83066 .83077 0.83077	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92081 9.92084 .92087 .92090 .92093 9.92101 .92104 9.92107 .92109 .92112 .92118 .92121 .92124	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83354 0.83359 .83365 .83370 0.83381 .83386 .83392 .83397 0.83402 .83408	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92250 9.92253 9.92258 9.92261 9.92264 9.92266 9.92272 9.92272 9.92275 9.92278 9.92283 9.92283 9.92289	0.83618 .83624 .83629 .83635 0.83645 .83651 .83656 0.83661 .83672 .83678 0.83683 .83688 .83699 0.83704 .83710 .83720 0.83726 .83726 .83726	58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 24 22 20 18 16
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91575 9.91578 .91581 .91584 .91587 9.91593 .91593 .91596 .91599 9.91602 .91608 .91608 .91610 9.91613	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82367 0.82373 .82384 .82339 0.82395 .82400 .82400 .82412 0.82417 .82423 .82423 .82434 0.82439	8h 43m 9.91718 .91721 .91727 9.91730 .91732 .91735 .91738 9.91741 .91744 .91747 .91750 9.91758 .91761 9.91764 .91770 .91773 9.91776 .91779 .91779 .91782 .91784 9.91784	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82699 0.82704 .82715 .82721 0.82726 .82732 .82732 .82733 .82743 0.82748 .82754 .82754 .82754 .82756 0.82770	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91916 .91919 .91922 9.91925 .91931 .91934 9.91936 .91939 .91942 .91945 9.91948 .91956 9.91959	0.82967 .82973 .82978 .82978 0.82989 .82995 .83000 .83006 0.83011 .83016 .83022 .83027 0.83033 .83044 .83049 0.83055 .83066 .83071 0.83077 .83082 .83087 0.83098	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92081 9.92081 9.92093 9.92095 .92090 .92101 .92104 9.92107 .92112 .92115 9.92124 .92126 9.92129	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83354 0.83359 .83365 .83370 .83375 0.83381 .83386 .83392 .83397 0.83402 .83408	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92255 9.92255 9.92258 9.92261 9.92264 9.92272 9.92275 9.92278 9.92278 9.92278 9.92280 9.92280 9.92280 9.92280 9.92294 9.92294	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83667 .83678 0.83683 .83694 .83699 0.83704 .83715 .83720 0.83726 .83731 .83737 .83732	60 58 56 54 52 50 48 46 44 42 40 38 38 36 34 32 30 28 26 24 22 20 18 16 11
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50	9.91543 .91546 .91549 .91552 9.91555 .91561 .91564 9.91567 .91573 .91575 9.91578 .91584 .91587 9.91589 .91590 .91593 .91590 .91602 .91605 .91600 .91610 .91613 .91616	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82362 .82367 0.82373 .82373 .82378 .82384 .82399 0.82406 .82406 .82412 0.82417 .82423 .82423 .82434 0.82433	8h 43m 9.91718 .91721 .91727 9.91730 .91732 .91735 .91738 9.91744 .91747 .91750 9.91753 .91756 .91758 .91764 .91767 .91770 .91773 9.91773 9.91773 9.91773 9.91782 .91784 9.91787 .91787	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82693 .82699 0.82704 .82710 .82715 .82721 0.82726 .82732 .82732 .82737 0.82748 .82754 .82754 .82756 0.82776	8h 45m 9.91891 9.91894 9.91896 9.91902 9.91905 9.91914 9.91916 9.91925 9.91925 9.91936 9.91934 9.91936 9.91936 9.91945 9.91945 9.91945 9.91956 9.91959 9.91959	0.82967 .82973 .82978 .82989 .82995 .82995 .83000 .83006 0.83011 .83016 .83022 .83027 0.83033 .83038 .83049 0.83055 .83060 .83071 0.83077 .83082 .83098 .83098 .83098	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92081 9.92084 .92087 .92090 .92093 9.92095 .92098 .92101 .921104 9.92107 .92109 .92112 .92115 9.92124 .92126 9.92129 .92132	0.83294 .83300 .83305 .83316 0.83316 .83327 .83327 .83329 0.83354 0.83354 0.83354 0.83354 0.83359 .83365 .83375 0.83381 .83386 .83392 0.83402 .83408 .83413 .83419 0.83424	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92250 9.92253 9.92255 9.92264 9.92266 9.92272 9.92275 9.92278 9.92278 9.92278 9.92283 9.92283 9.92284 9.92294 9.92297 9.92300	132° 0′ 0.83618 .83624 .83629 .83635 0.83645 .83651 .83656 0.83667 .83672 .83678 0.83688 .83699 0.83704 .83710 .83710 .83720 0.83726 .83731 .83737 .83737 .83747	60 58 56 54 52 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 11 12 10
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91575 9.91578 .91581 .91584 .91587 9.91590 .91593 .91590 .91605 .91605 .91608 .91610 9.91613 .91619 .91622	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82356 .82367 0.82373 .82384 .82339 0.82395 .82400 .82400 .82412 0.82417 .82423 .82423 .82434 0.82439	8h 43m 9.91718 .91721 .91727 9.91730 .91732 .91735 .91738 9.91741 .91744 .91747 .91750 9.91758 .91761 9.91764 .91770 .91773 9.91776 .91779 .91779 .91782 .91784 9.91784	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82693 .82699 0.82704 .82710 .82711 0.82726 .82732 .82732 .82733 .82743 0.82748 .82759 .82759 .82759 .82759 .82776 .82776	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91919 .91922 9.91925 .91928 .91931 9.91934 9.91936 .91939 .91942 .91945 9.91945 9.91951 .91954 .91956 9.91962 .91965 .91968	0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83016 .83016 .83012 .83022 .83027 0.83033 .83038 .83049 0.83055 .83060 .83060 .83060 .83067 .83082 .83087 .83082 .83087 .83082 .83081	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92081 9.92084 .92087 .92090 .92101 .92104 9.92107 .92112 .92115 9.92118 .92121 .92124 .92126 9.92129 .92135 .92135	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83354 0.83359 .83365 .83370 .83375 0.83381 .83386 .83392 .83397 0.83402 .83408	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92250 9.92253 9.92258 9.92261 9.92264 9.92266 9.92272 9.92272 9.92275 9.92278 9.92283 9.92283 9.92289 9.92297 9.92297 9.92303 9.92303 9.92305	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83667 .83678 0.83683 .83694 .83699 0.83704 .83715 .83720 0.83726 .83731 .83737 .83732	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 11 11 11 11 11 11 11 11 11 11 11 11 11
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91575 9.91578 .91581 .91584 .91587 9.91590 .91593 .91590 .91605 .91606 .91610 9.91613 .91616 .91619 .91622 9.91625	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82356 .82362 .82367 0.82373 .82378 .82384 .82399 0.82295 .82400 .82410 0.82417 .82423 .82428 .82434 0.82439 .82436 0.82450 .82456	8h 43m 9.91718 .91721 .91727 9.91730 .91732 .91735 .91738 9.91741 .91744 .91750 9.91756 .91756 .91758 .91767 .91770 .91773 9.91776 .91770 .91773 9.91782 .91784 9.91784 9.91789 9.91799	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82683 .82699 0.82704 .82715 .82715 .82721 0.82726 .82737 .82743 0.82748 .82759 .82759 .82759 .82759 .82759 .82759	8h 45m 9.91891 .91894 .91896 .91899 9.91905 .91905 .91908 .91911 9.91916 .91919 .91922 9.91925 .91928 .91931 .91934 9.91936 .91942 .91945 9.91948 .91951 .91954 .91956 9.91959 .91965 .91968 9.91971	0.82967 .82973 .82973 .82978 .82989 0.82989 .82995 .83000 .83011 .83016 .83022 .83027 0.83033 .83038 .83044 .83049 0.83055 .83066 .83071 0.83077 .83082 .83087 .83089 .83104 .83109 .83115 0.83120	8h 47m 9.92061 9.92064 9.92073 9.92076 9.92078 9.92084 9.92087 9.92093 9.92093 9.92095 9.92095 9.92101 9.92107 9.92112 9.92115 9.92121 9.92124 9.92124 9.92129 9.92132 9.92138 9.92140	0.83294 .83300 .83305 .83310 0.83316 .83321 .83327 .83332 0.83337 .83348 .83354 0.83359 .83365 .83370 .83375 0.83381 .83386 .83392 .83392 .83397 0.83402 .83402 .83402 .83402 .83402 .83402 .83402 .83404 .83440 .83446	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92255 9.92255 9.92256 9.92261 9.92264 9.92269 9.92275 9.92275 9.92275 9.92275 9.92278 9.92289 9.92289 9.92294 9.92294 9.92294 9.92294 9.92303 9.92305 9.92308	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83667 .83672 .83678 0.83683 .83688 .83694 .83710 .83715 .83720 0.83726 .83731 .83737 .83742 0.83747 .83743 0.83763	60 58 56 56 50 48 46 44 42 40 38 36 32 30 28 26 22 20 18 16 11 12 10 8 6
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91575 9.91578 .91581 .91584 .91587 9.91590 .91593 .91590 .91605 .91605 .91608 .91610 9.91613 .91619 .91622	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82334 .82339 .82345 0.82351 .82362 .82367 0.82373 .82378 .82384 .82339 0.82395 .82400 .82410 0.82412 0.82417 .82423 .82428 .82434 0.82439 .82436	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91747 .91750 9.91753 .91756 .91764 .91767 .91770 .91773 9.91773 9.91774 .91779 .91782 .91784 9.91784 9.91784 9.91787 .91790 .91793 .91796	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82693 .82699 0.82704 .82710 .82711 0.82726 .82732 .82732 .82733 .82743 0.82748 .82759 .82759 .82759 .82759 .82776 .82776	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91919 .91922 9.91925 .91928 .91931 9.91934 9.91936 .91939 .91942 .91945 9.91945 9.91951 .91954 .91956 9.91962 .91965 .91968	0.82967 .82973 .82978 .82984 0.82989 .82995 .83000 .83016 .83016 .83012 .83022 .83027 0.83033 .83038 .83049 0.83055 .83060 .83060 .83060 .83067 .83082 .83087 .83082 .83087 .83082 .83081	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92081 9.92084 .92087 .92090 .92101 .92104 9.92107 .92112 .92115 9.92118 .92121 .92124 .92126 9.92129 .92135 .92135	0.83294 .83300 .83305 .83310 0.83316 .83327 .83332 0.83337 .83348 .83354 0.83359 .83365 .83375 0.83381 .83386 .83392 .83392 .83392 .83408 .83413 .83419 0.83424 .83430 .83435	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92250 9.92253 9.92258 9.92261 9.92264 9.92266 9.92272 9.92272 9.92275 9.92278 9.92283 9.92283 9.92289 9.92297 9.92297 9.92303 9.92303 9.92305	132° 0′ 0.83618 .83624 .83629 .83635 0.83645 .83651 .83656 0.83661 .83667 .83678 0.83688 .83698 .83699 0.83704 .83710 .83710 .83715 .83720 0.83726 .83731 .83737 .83742 0.83747 .83758	60 58 56 54 52 50 48 46 44 42 40 38 36 34 32 30 28 26 24 22 20 18 11 11 11 11 11 11 11 11 11 11 11 11
0+15 2 4+16 6 8+17 10 12+18 14 16+19 18 20+20 22 24+21 26 28+22 30 32+23 34 36+24 38 40+25 42 44+26 46 48+27 50 52+28 54 56+29 58	9.91543 .91546 .91549 .91552 9.91555 .91558 .91564 9.91567 .91570 .91573 .91578 .91581 .91584 .91590 .91590 .91590 .91605 .91608 .91610 .91613 .91616 .91619 .91622 9.91625 .91628 9.91631	130° 0′ 0.82306 .82312 .82317 .82323 0.82328 .82339 .82345 0.82351 .82356 .82367 0.82373 .82378 .82384 .82339 0.82490 .82412 0.82417 .82423 .82428 .82434 0.82439 .82456 0.82466	8h 43m 9.91718 .91721 .91724 .91727 9.91730 .91732 .91735 .91738 9.91741 .91747 .91750 9.91753 .91758 .91764 .91767 .91770 .91773 9.91773 9.91774 .91790 .91793 .91790 .91799 .91802 9.91805	0.82638 .82644 .82649 .82655 0.82666 .82671 .82677 0.82682 .82688 .82699 0.82704 .82715 .82721 0.82726 .82732 .82737 .82743 0.82748 .82759 .82759 0.82776 .82776 .82776 .82776 .82776 .82776 .82776 .82776 .82776 .82781	8h 45m 9.91891 .91894 .91896 .91899 9.91902 .91905 .91908 .91911 9.91914 .91916 .91922 9.91925 .91928 .91931 .91934 9.91936 .91939 .91942 .91945 .91948 .91951 .91954 .91956 9.91959 .91962 .91965 .91968 9.91971 .91973 9.91976	0.82967 .82973 .82978 .82989 .82995 .83000 .83006 0.83011 .83016 .83022 .83027 0.83033 .83044 .83049 0.83055 .83066 .83071 0.83077 .83087 7.83082 .83087 10.83075 .83083 .83044 .83109 0.83115 0.83120	8h 47m 9.92061 .92064 .92067 .92070 9.92073 .92076 .92081 9.92084 .92090 .92093 9.92095 .92098 .92101 .92112 .92115 .92124 .92126 9.92129 .92132 .92135 .92143 9.92140 .92144	0.83294 .83300 .83305 .83310 0.83316 0.83321 .83327 .83332 0.83335 0.83355 0.83355 0.83355 0.83365 .83375 0.83381 .83480 .83492 .83402 .83402 .83419 0.83424 .83430 .83440 0.83446	8h 49m 9.92230 9.92233 9.92239 9.92241 9.92247 9.92250 9.92255 9.92258 9.92261 9.92264 9.92272 9.92272 9.92275 9.92280 9.92280 9.92280 9.92292 9.92294 9.92294 9.92297 9.92300 9.92303 9.92303 9.92311 9.92314	132° 0′ 0.83618 .83624 .83629 .83635 0.83640 .83645 .83651 .83666 0.83661 .83667 .83678 0.83683 .83694 .83699 0.83704 .83715 .83720 0.83726 .83731 .83737 .83742 0.83747 .83753 .83753 .83763 0.83769	60 58 56 56 52 50 48 46 44 42 42 40 38 36 32 32 28 26 22 20 18 16 11 10 8 6 4 2

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TABLE 45.

	8h 50m	132° 30′	8h 52m	133° 0′	8h 54m	133° 30′	8h 56m	134° 0′	8h 58m	134° 30′	
s ′		Nat. Hav.	· · ·			Nat. Hav.					s
0 0	9.92314	0.83780	9.92480	0.84100	9.92643	0.84418	9.92805	0.84733	9.92965	0.85045	60
2	.92317	.83785	.92482	.84105	.92646	.84423	.92808	.84738	.92968	.85051 .85056	58
4+ 1	.92319 $.92322$.83790 .83796	.92485 .92488	.84111 .84116	.92649 $.92652$.84428 .84434	.92811	.84743 .84749	.92970 .92973	.85061	56 54
8+ 2	9.92325	0.83801	9.92491	0.84121	9.92654	0.84439	9.92816	0.84754	9.92975	0.85066	52
10 12+ 3	.92328	.83806 .83812	.92493 .92496	.84127 .84132	.92657 .92660	.84444 .84449	.92819 .92821	.84759	.92978 .92981	.85071 .85077	50
12+ 3	.92333	.83817	.92490	.84137	.92662	.84455	.92824	.84770	.92984	.85082	48 46
16+4	9.92336	0.83822	9.92502	0.84142	9 92665	0.84460	9.92827	0.84775	9.92986	0.85087	44
18 20+ 5	.92339 .92342	.83828	.92504 .92507	.84148 .84153	.92668 .92670	.84465 .84470	.92829 .92832	.84780 .84785	.92989	.85092 .85097	42
22	.92344	.83838	.92510	.84158	.92673	.84476	.92835	.84790	.92994	.85102	38
24+ 6 26	9.92347 $.92350$	0.83844 .83849	9.92512 $.92515$	0.84164 .84169	9.92676 $.92679$	0.84481 .84486	9.92837 $.92840$	0.84796 .84801	9.92997	0.85108 .85113	36 34
28+ 7	.92353	.83855	.92518	.84174	.92681	.84492	.92843	.84806	.93001	.85118	32
30	.92355	.83860	.92521	.84180	.92684	.84497	.92845	.84811	.93005	.85123	30
32+ 8 34	9.92358	0.83865 .83871	9.92523 $.92526$	0.84185 .84190	9.92687 $.92689$	0.84502 .84507	9.92848	0.84817 .84822	9.93007 .93010	0.85128 .85134	28 26
36+ 9	.92364	.83876	.92529	.84196	.92692	.84513	.92853	.84827	.93013	.85139	24
$\frac{38}{40+10}$	$\frac{.92366}{9.92369}$	-83881 0.83887	.92532	.84201	.92695	.84518	.92856	.84832	$\frac{.93015}{9.93018}$.85144 0.85149	22
42	.92372	.83892	9.92534 .92537	0.84206 .84211	9.92698 $.92700$	0.84523 .84528	9.92859 .92861	0.84837	.93021	.85154	18
44+11	.92375	.83897	.92540	.84217	.92703	.84534	.92864	.84848	.93023	.85159	16
46 48+12	$\begin{array}{c} .92378 \\ 9.92380 \end{array}$.83903 0.83908	.92543 9. 92545	.84222 0.84227	.92706 9.92708	.84539 0.84544	92867 9.92869	.84853 0.84858	0.93026 0.93029	.85165 0.85170	14 12
50	.92383	.83913	.92548	.84233	.92711	.84549	.92872	.84863	.93031	.85175	10
52+ 13 54	.92386 .92389	.83919	.92551 .92554	.84238 .84243	.92714 .92716	.84555 .84560	.92875 $.92877$.84869 .84874	.93034 .93036	.85180 .85185	8
56+14	$\frac{.92333}{9.92391}$	0.83929	$\frac{.92554}{9.92556}$	0.84249	9.92719	0.84565	9.92880	0.84879	9.93039	0.85190	4
58	9.92394	0.83935	9.92559	0.84254	9.92722	0.84570	9.92883	0.84884	9.93042	0.85196	2
	15h	9m	15h	7 m	15%	5m	15h	3 m	15h	1m	
s ′	8h 51m	132° 39′	8h 5,3m	133° 0′	8h 55m	133° 30′	8h 57m	134° 0′	8h 59m	134° 30′	s
0+15	9.92397	0.83940	9.92562	0.84259	9.92725	0.84576	9.92885	0.84890	9.93044	0.85201	60
2	.92400	.83945	.92564	.84264	.92727	.84581	.92888	.84895	.93047	.85206 .85211	58 56
4+16 6	.92402	.83951 .83956	.92567 $.92570$.84270 .84275	.92730 .92733	.84586 .84591	.92891 .92893	.84900 .84905	.93050	.85216	54
8+17	9.92408	0.83961	9.92573	0.84280	9.92735	0.84597	9.92896	0.84910	9.93055	0.85221	52
10 12+ 18	.92411 .92413	.83967	.92575 .92578	.84286 .84291	.92738 .92741	.84602 .84607	.92899	.84916 .84921	.93057 .93060	.85227 .85232	50 48
14	.92416	.83977	.92581	.84296	.92743	.84612	.92904	.84926	.93063	.85237	46
16+19	9.92419	0.83983 .83988	9.92584	0.84302	9.92746	0.84618	9.92907	0.84931	9.93065	0.85242 .85247	44
18 20+20	.92422 .92425	.83993	.92586 $.92589$.84307 .84312	.92749 .92751	.84623	.92909	.84936 .84942	.93068 .93071	.85252	42 40
22	.92427	.83999	.92592	.84317	.92754	.84633	.92915	.84947	.93073	.85258	38
24+ 21 26	9.92430	0.84004 .84009	9.92594	0.84323 .84328	9.92757 $.92760$	0.84639 .84644	9.92917 $.92920$	0.84952 .84957	9.93076 .93079	0.85263 .85268	36 34
28+22	.92436	.84015	.92600	.84333	.92762	.84649	.92923	.84962	.93081	.85273	32
30	0.92438 0.92441	.84020 0.84025	.92603	.84339 0.84344	.92765	.84654	.92925	.84968 0.84973	.93084 9.93086	.85278 0.85283	30
32+ 23 34	.92441	.84031	$9.92605 \\ .92608$.84349	$9.92768 \\ .92770$	0.84660 .84665	9.92928 $.92931$.84978	.93089	.85288	28 26
36+24	.92447	.84036	.92611	.84354	.92773	.84670	.92933	.84983	.93092	.85294	24
$\frac{38}{40+25}$	$\frac{.92449}{9.92452}$.84041 0.84047	$\frac{.92613}{9.92616}$.84360 0.84365	$\frac{.92776}{9.92778}$.84675 0.84681	$\frac{.92936}{9.92939}$.84988 0.84994	$\frac{.93094}{9.93097}$	$\frac{.85299}{0.85304}$	20
42	.92455	.84952	.92619	.84370	.92781	.84686	.92941	.84999	.93100	.85309	18
44+26	.92458	.84057	.92622	.84376	.92784 .92786	.84691	.92944	.85004	.93102 .93105	.85314 .85319	16
46 48 +27	.92460 9.92463	.84063 0.84068	0.92624 0.92627	.84381 0.84386	9.92786 9.92789	.84696 0.84702	0.92947 0.92949	.85009 0.85014	9.93105	0.85324	14 12
50	.92466	.84073	.92630	.84391	.92792	.84707	.92952	.85020	.93110	.85330	10
52+28 54	.92469	.84079 .84084	.92633 .92635	.84397 .84402	.92794 .92797	.84712 .84717	.92955 .92957	.85025 .85030	.93113 .93115	.85335 .85340	8
	.02411							0.85035			
56+29	$\frac{.92471}{9.92474}$	0.84089	9.92638	0.84407	9.92800	0.84722	9.92960		9.93118	0.85345	4
58	9.92474 .92477	0.84089 .84095	$9.92638 \\ .92641$.84412	.92802	.84728	.92962	.85040	.93120	.85350	2
	9.92474 .92477 9.92480	0.84089	9.92638 .92641 9.92643		.92802 9.92805		.92962 9.92965		.93120 9.93123		20

		9h 0m	135°	9h 4m	136°	9h 8m	137°	9h 12m	138°	9h 16m	139°	
s	,			Log. Hav.		Log. Hav.			Nat. Hav.			-s
	0								0.87157			
0		9.93123	0.85355	9.93433	0.85967	9.93736	0.86568	9.94030		9.94318	0.87735	60
4	1	.93128	.85366	.93438	.85977	.93741	.86578	.94035	.87167	.94322	.87745	56
8	2	.93134	.85376	.93443	.85987	.93746	.86588	.94040	.87177	.94327	.87755	52
12	3	.93139	.85386	.93448	.85997	.93751	.86597	.94045	.87186	.94332	.87764	48
16	4	9.93144	0.85396	9.93454	0.86007	9.93755	0.86607	9.94050	0.87196	9.94336	0.87774	44
20	5	.93149	.85407	.93459	.86017	.93760	.86617	.94055	.87206	.94341	.87783	40
24	6	.93154	.85417	.93464	.86028	.93765	.86627	.94059	.87216	.94346	.87793	36
28	7	.93160	.85427	.93469	.86038	.93770	.86637	.94064	.87225	.94351	87802	32
32	8	9.93165		9.93474	0.86048	9.93775	0.86647	9.94069	0.87235	9.94355	0.87812	28
36	9		0.85438									24
		.93170	.85448	.93479	.86058	.93780	.86657	.94074	.87245	.94360	.87821	
40	10	.93175	.85458	.93484	.86068	.93785	.86667	.94079	.87254	.94365	.87831	20
44	11	.93181	.85468	.93489	.86078	.93790	.86677	.94084	.87264	.94369	.87840	16
48	12	9.93186	0.85479	9.93494	0.86088	9.93795	0.86686	9.94088	0.87274	9.94374	0.87850	12
52	13	.93191	.85489	.93499	.86998	.93800	.86696	.94093	.87283	.94379	.87859	8
56	14	9.93196	0.85499	9.93504	0.86108	9.93805	0.86706	9.94098	0.87293	9.94383	0.87869	4
			59m	14h	55m	14h	51m	14h	47m		43m	
		The second second second	The second second		136°					The second second		
S	/	9h 1m	135°	9h 5m		9h 9m	137°	9h 13m	138°	9h 17m	139°	S
0	15	9.93201	0.85509	9.93509	0.86118	9.93810	0.86716		0.87303	9.94388	0.87878	60
4	16	.93207	.85520	.93515	.86128	.93815	.86726	.94108	.87313	.94393	-87888	56
8	17	.93212	.85530	.93520	.86138	.93820	.86736	.94112	.87322	.94398	.87897	52
12	18	.93217	.85540	.93525	.86148	.93825	.86746	.94117	.87332	.94402	.87907	48
16	19	9.93222	0.85550	9.93530	0.86158	9.93830	0.86756	9.94122	0.87342	9.94407	0.87916	44
20	20	.93227	.85560	.93535	.86168	.93835	.86765	.94127	.87351	.94412	.87926	40
24	21	.93232	.85571	.93540	.86178	.93840	.86775	.94132	.87361	.94416	.87935	36
28	22	.93238	.85581	.93545	.86189	.93845	.86785	.94137	.87371	.94421	.87945	32
32	23	9.93243	0.85591	9.93550	0.86199	9.93849	0.86795	9.94141	0.87380	9.94426	0.87954	28
36	24	.93248	.85601	.93555	.86209	.93854	.86805	.94146	.87390	.94430	.87964	24
	25	.93253	.85612	.93560	.86219	.93859	.86815	.94151	.87400	.94435	.87973	20
40		.93258	.85622	.93565	.86229	.93864	.86825	.94156	.87409	.94440	.87983	16
44	26						0.86834		0.87419	9.94444		
48	27	9.93264	0.85632	9.93570	0.86239	9.93869		9.94161			0.87992	12
52	28	.93269	.85642	.93575	.86249	.93874	.86844	.94165	.87428	.94449	.88001	8
56	29		0.85652	9.93580		9.93879	1		0.87438		0.88011	4
		14h	58m	14h	54m	-	50m	1 14h	46m	14h	42m	
S	/	9h 2m	135°	9h 6m	136°	9h 10m	137°	9h 14m	138°	9h 18m	139°	S
s								$\frac{9h\ 14m}{9.94175}$		$\frac{9h\ 18m}{9.94458}$	139° 0.88020	
0	30	9.93279	0.85663	9.93585	0.00008	9.93884	0.86864	9.94175	0.87448	9.94458	0.88020	60
0 4	30 31	9.93279 .93284	0.85663 .85673	9.93585 .93590	0.46238 .86279	9.93884 .93889	0.86864 .86874	9.94175 .94180	0.87448 .87457	9.94458 .94463	0.88020 .88030	60 56
0 4 8	30 31 32	9.93279 .93284 .93289	0.85663 .85673 .85683	9.93585 .93590 .93595	.86279 .86289	9.93884 .93889 .93894	0.86864 .86874 .86884	9.94175 .94180 .94184	0.87448 .87457 .87467	9.94458 .94463 .94468	.88020 .88030 .88039	60 56 52
0 4 8 12	30 31 32 33	9.93279 .93284 .93289 .93295	0.85663 .85673 .85683 .85693	9.93585 .93590 .93595 .93600	.86279 .86289 .86299	9.93884 .93889 .93894 .93899	0.86864 .86874 .86884 .86893	9.94175 .94180 .94184 .94189	0.87448 .87457 .87467 .87477	9.94458 .94463 .94468 .94472	.88030 .88030 .88039 .88049	60 56 52 48
0 4 8 12 16	30 31 32 33 34	9.93279 .93284 .93289 .93295 9.93300	0.85663 .85673 .85683 .85693 0.85703	9.93585 .93590 .93595 .93600 9.93605	.86279 .86289 .86299 0.86309	9.93884 .93889 .93894 .93899 9.93904	0.86864 .86874 .86884 .86893 0.86903	9.94175 .94180 .94184 .94189 9.94194	0.87448 .87457 .87467 .87477 0.87486	9.94458 .94463 .94468 .94472 9.94477	0.88020 .88030 .88039 .88049 0.88058	60 56 52 48 44
0 4 8 12 16 20	30 31 32 33 34 35	9.93279 .93284 .93289 .93295 9.93300 .93305	0.85663 .85673 .85683 .85693 0.85703 .85713	9.93585 .93590 .93595 .93600 9.93605 .93611	0.36279 .86289 .86289 0.86309 .86319	9.93884 .93889 .93894 .93899 9.93904 .93908	0.86864 .86884 .86893 0.86903 .86913	9.94175 .94180 .94184 .94189 9.94194 .94199	0.87448 .87457 .87467 .87477 0.87486 .87496	9.94458 .94463 .94468 .94472 9.94477 .94482	0.88020 .88030 .88039 .88049 0.88058 .88068	60 56 52 48 44 40
0 4 8 12 16 20 24	30 31 32 33 34 35 36	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616	0.36278 .86279 .86289 .86299 0.86309 .86319 .86329	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913	0.86864 .86884 .86893 0.86903 .86913 .86923	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505	9.94458 .94463 .94468 .94472 9.94477 .94482 .94486	0.88020 .88030 .88039 .88049 0.88058 .88068	60 56 52 48 44 40 36
0 4 8 12 16 20 24 28	30 31 32 33 34 35 36 37	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310 .93315	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621	0.86279 .86289 .86289 0.86309 .86319 .86329 .86339	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918	0.86864 .86884 .86893 0.86903 .86913 .86923 .86933	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 .94208	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515	9.94458 .94463 .94468 .94472 9.94477 .94482 .94486 .94491	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077	60 56 52 48 44 40 36 32
0 4 8 12 16 20 24 28 32	30 31 32 33 34 35 36 37 38	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310 .93315 9.93320	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621 9.93626	0.6279 .86289 .86289 0.86309 .86319 .86329 .86339 0.86349	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93923	0.86864 .86874 .86884 .86893 0.86903 .86913 .86923 0.86942	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 .94208 9.94213	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515 0.87525	9.94458 .94463 .94468 .94472 9.94477 .94482 .94486 .94491 9.94496	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096	60 56 52 48 44 40 36 32 28
0 4 8 12 16 20 24 28 32 36	30 31 32 33 34 35 36 37 38 39	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310 .93315 9.93320 .93326	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621 9.93626 .93631	.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93923 .93928	0.86864 .86874 .86884 .86893 0.86903 .86913 .86923 .86933 0.86942 .86952	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 .94208 9.94213 .94218	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515 0.87525 .87534	9.94458 .94463 .94468 .94472 9.94477 .94482 .94486 .94491 9.94496 .94500	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096	60 56 52 48 44 40 36 32 28 24
0 4 8 12 16 20 24 28 32	30 31 32 33 34 35 36 37 38	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310 .93315 9.93320	0.85663 .85683 .85683 .85693 0.85703 .85714 .85734 0.85744 .85754 .85764	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621 9.93626	.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93923 .93928 .93933	0.86864 .86874 .86884 .86893 0.86903 .86913 .86923 .86933 0.86942 .86952 .86962	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 9.94208 9.94213 .94218 .94223	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515 0.87525 .87534	9.94458 .94463 .94468 .94472 9.94477 .94486 .94491 9.94496 .94500 .94505	0.88020 .88030 .88039 .88049 0.88058 .88067 .88066 0.88086 0.88096 .88105	60 56 52 48 44 40 36 32 28 24 20
0 4 8 12 16 20 24 28 32 36	30 31 32 33 34 35 36 37 38 39	9.93279 .93284 .93289 .93295 9.93300 .93315 .93315 9.93320 .93326 .93336	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621 9.93626 .93631 .93636 .93641	.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93923 .93928 .93933 .93938	0.86864 .86874 .86884 .86893 0.86903 .86913 .86923 .86933 0.86942 .86952 .86962	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 .94208 9.94213 .94218 .94223 .94227	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515 0.87525 .87534 .87544	9.94458 .94463 .94468 .94472 9.94477 .94482 .94491 9.94496 .94500 .94505 .94509	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115	60 56 52 48 44 40 36 32 28 24
0 4 8 12 16 20 24 28 32 36 40 44	30 31 32 33 34 35 36 37 38 39 40	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310 .93315 9.93320 .93326 .93331	0.85663 .85683 .85683 .85693 0.85703 .85714 .85734 0.85744 .85754 .85764	9.93585 .93590 .93595 .93600 9.93605 .93616 .93621 9.93626 .93631 .93636	.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93923 .93928 .93933	0.86864 .86874 .86884 .86893 0.86903 .86913 .86923 .86933 0.86942 .86952 .86962	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 9.94208 9.94213 .94218 .94223	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515 0.87525 .87534	9.94458 .94463 .94468 .94472 9.94477 .94486 .94491 9.94496 .94500 .94505	0.88020 .88030 .88039 .88049 0.88058 .88067 .88066 0.88086 0.88096 .88105	60 56 52 48 44 40 36 32 28 24 20
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41	9.93279 .93284 .93289 .93295 9.93300 .93315 9.93320 .93326 .93331 .93336 9.93341	0.85663 .85673 .85683 .85693 0.85703 .85714 .85734 0.85744 .85754 .85764	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621 9.93626 .93631 .93636 .93641	.86279 .86289 .86299 0.86309 .86319 .86329 0.86339 0.86339 .86369 .86379	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93923 .93928 .93933 .93938	0.86864 .86874 .86884 .86893 0.86903 .86913 .86923 .86933 0.86942 .86952 .86962	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 .94208 9.94213 .94218 .94223 .94227	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515 0.87525 .87534 .87544	9.94458 .94463 .94468 .94472 9.94477 .94482 .94486 .94491 9.94500 .94505 .94509 9.94514 .94519	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 .88124 0.88133 .88143	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42	9.93279 .93284 .93289 .93295 9.93300 .93315 9.93320 .93326 .93336 .933341 .93346	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85764 .85774	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621 9.93636 .93631 .93636	.86279 .86289 .86299 0.86309 0.86319 .86329 .86339 0.86349 .86359 .86369 0.86389	9.93884 .93889 .93894 .93899 9.93904 .93913 .93918 9.93923 .93928 .93938 9.93938 9.93943	0.86864 .86874 .86893 0.86903 .86913 .86923 .86933 0.86942 .86952 .86952 0.86962	9.94175 .94180 .94184 .94189 9.94194 .94199 .94204 .94208 9.94213 .94223 .94223 9.94232	0.87448 .87457 .87467 .87477 0.87486 .87496 .87505 .87515 0.87525 .87534 .87544 .87554 0.87563	9.94458 .94463 .94468 .94472 9.94477 .94482 .94486 .94491 9.94505 .94500 9.94514	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 .88124 0.88133 .88143	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9.93279 .93284 .93289 .93295 9.93300 .93315 .93310 .93326 .93326 .93331 .93336 9.93341 .93346 9.93351	0.85663 .85673 .85683 .85693 .85713 .85724 .85734 .85744 .85744 .85774 0.85785 .85795 0.85805	9.93585 .93590 .93595 .93600 .93605 .93611 .93616 .93626 .93631 .93636 .93641 9.93646 .93651 9.93656	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359 .86379 0.86389 0.86389	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93928 .93938 .93938 9.93948 9.93948 9.93952	0.86864 .86874 .86884 .86893 .86913 .86923 .86933 .86942 .86952 .86962 .86972 0.86982 0.86982	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94213 .94223 .94227 9.94237 9.94237 9.94237	0.87448 .87457 .87467 .87477 0.87486 .87505 .87515 0.87525 .87534 .87544 .87554 0.87563 0.87563	9.94458 .94463 .94468 .94472 9.94477 .94482 .94486 .94491 9.94500 .94505 .94509 9.94519 9.94519 9.94523	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 .88124 0.88133 .88143	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.93279 .93284 .93289 .93295 9.93300 .93315 .93316 .93326 .93331 .93336 9.93341 .93346 9.93351	0.85663 .85673 .85683 .85693 0.85703 .85714 .85734 .85734 .85744 .85764 .85774 0.85785 0.85785 0.85805	9.93585 .93590 .93590 .93595 .93600 9.93605 .93611 .93626 .93626 .93631 .93636 .93641 9.93646 .93651 9.93656	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359 .86379 0.86389 0.86389 0.86409	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93923 .93928 .93938 9.93943 9.93948 9.93952 .744h	0.86864 .89874 .86884 .86893 .86913 .86923 .86933 .86942 .86952 .86962 .86972 0.86982 0.86981 0.87001	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94213 .94223 .94237 9.94237 9.94237 9.94242 14h	0.87448 .87457 .87467 .87477 0.87486 .87505 .87515 0.87525 .87534 .87544 .87554 0.87563 .87573 0.87582	9.94458 .94463 .94463 .94468 .94472 9.94477 .94486 .94491 9.94500 .94505 .94509 9.94514 .94519 9.94523	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 .88124 0.88133 .8143 0.88152	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.93279 .93284 .93289 .93295 9.93300 .93315 .93310 .93315 9.93320 .93326 .93331 .93336 9.93341 .93346 9.93351 .948	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85754 .85774 0.85785 .85795 0.85805	9.93585 .93590 .93595 .93600 9.93605 .93611 .93626 .93621 9.93626 .93631 .93636 .93641 9.93646 .93656 .93656 .947m	0.86279 .86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86359 .86369 .86379 0.86389 0.86409	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93928 .93933 .93948 9.93943 .93948 9.93952 .14h	0.86864 .86874 .86884 .86893 0.86993 .86913 .86923 .86932 .86952 .86952 .86962 .86972 0.86982 .86972 0.87001	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94227 9.94232 .94237 9.94237 9.94242 .9457 9.9457	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87544 .87554 0.87563 .87573 0.87582	9.94458 .94463 .94468 .94472 9.94477 .94486 .94496 .94500 .94505 .94509 9.94514 .94519 9.94523 .14h .94 19m	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.88133 .88143 0.88152 41m	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310 .93326 .93326 .93331 .93336 9.93341 .93346 9.9351 .14h 9h gm 9.93356	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85754 .85774 0.85785 0.85805 57m 135°	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93621 9.93626 .93631 .93636 .93641 9.93646 9.93651 9.93656 14h 9.93661	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369 .86379 0.86389 0.86409 53m 136°	9.93884 .93889 .93894 .93908 .93913 .93918 9.93923 .93928 .93933 .93948 9.93952 .74h 9h 11m 9.93957	0.86864 .86874 .86893 0.86903 .86913 .86923 .86932 .86952 .86952 .86962 .86972 0.86982 0.86982 10.87001	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94227 9.94237 9.94237 9.94237 9.94242 14h 9h 15m 9.94246	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87554 0.87553 0.87563 138°	9.94458 .94463 .94468 .94477 .94482 .94486 .94496 .94500 .94505 .94509 9.94514 .94519 9.94523 14h 9h 19m 9.94528	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88115 0.8813 0.88152 41m 139°	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.93279 .93284 .93289 .93295 9.93300 .93305 .93310 .93316 9.93320 .93326 .93331 .93336 9.93341 .93346 9.93351 .14h 9h sm 9.93356 .93362	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85764 .85774 0.85785 0.85805 57m 135° 0.85815 .85825	9.93585 .93590 .93595 .93600 9.93605 .93611 .93626 .93631 .93636 .93631 9.93636 .93641 9.93656 .93651 9.93656 14h 9.93661 .93666	.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359 .86379 0.86489 .86399 0.86409	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93928 .93933 .93948 9.93943 .93948 9.93952 14h 9.93957 .93962	0.86864 .86874 .86884 .86893 0.86993 .86913 .86932 .86932 .86952 .86952 .86962 .86972 0.86982 .86991 0.87001 49m 137°	$\begin{array}{c} 9.94175 \\ .94180 \\ .94184 \\ .94189 \\ 9.94194 \\ .94204 \\ .94203 \\ 9.94213 \\ .94223 \\ .94227 \\ 9.94232 \\ .94237 \\ 9.94242 \\ \hline .14h \\ \hline $	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87544 .87554 0.87563 .87573 0.87582 45m 138° 0.87592 .87602	9.94458 .94463 .94468 .94472 9.94477 .94486 .94496 .94500 .94505 .94509 9.94514 .94519 9.94523 14h 9h 19m 9.94528 .94533	0.88020 .88039 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.88133 .88143 0.88152 41m 139° 0.88162 .88171	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.93279 .93284 .93289 .93295 9.93300 .93315 9.93320 .93326 .93331 .93346 9.93341 .93346 9.93351 14h 9h 3m 9.93356 .93362 .93362	0.85663 .85673 .85683 .85693 0.85703 .85724 .85734 0.85744 .85754 .85764 .85774 0.83785 .85795 0.85805 57m 135° 0.85815 .85825 .85835	9.93585 .93590 .93595 .93605 .93605 .93611 .93616 .93621 9.93636 .93631 .93636 .93641 9.93656 .93656 .93656 .93656 .93656 .936566 .936666 .936671	0.86299 .86299 .86299 .86319 .86329 .86339 .86339 .86359 .86359 .86379 0.86409 53m 136° 0.86419 .86429 .86438	9.93884 .93889 .93894 .93899 9.93908 .93913 .93918 9.93923 .93928 .93933 .93948 9.93943 9.93949 14h 9.93957 .93967	0.86864 .86874 .86884 .86893 .86913 .86923 .86933 0.86942 .86952 .86967 0.86982 .86991 0.87001 49m 137° 0.87011 .87021	$\begin{array}{c} 9.94175 \\ .94180 \\ .94184 \\ .94189 \\ 9.94194 \\ .94199 \\ .94204 \\ .94203 \\ 9.94213 \\ .94227 \\ .94232 \\ .94237 \\ 9.94232 \\ .94237 \\ 9.94242 \\ \hline $	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87563 .87573 0.87582 45m 138° 0.87592 .87602 .87602 .87611	9.94458 .94463 .94463 .94463 .94472 9.94477 .94482 .94496 .94500 .94500 .94509 .94509 .94519 .94519 9.94523 .74h 9.94528 .94533 .94533	0.88020 .88030 .88039 .88039 0.88058 .88068 .88077 .88086 0.88096 .88105 .88113 0.88152 41m 139° 0.88162 .88171 .88180	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	9.93279 .93284 .93289 .93295 9.93300 .93315 .93316 .93326 .93331 .93336 9.93341 .93346 9.93351 14h 9h \$m 9.93356 .93362 .93362	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85764 .85774 0.85785 .85795 0.85805 .85805 .85825 .85825 .85835 .85846	9.93585 .93590 .93590 .93595 .93600 9.93605 .93611 .93626 .93621 9.93636 .93641 9.93646 .93651 9.93656 14h 9.93661 .93666 .93671 .93676	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86379 0.86389 0.86389 0.86409 53m 136° 0.86419 .86429 .86428 .86438	9.93884 .93889 .93894 .93899 .93904 .93908 .93913 .93918 .93928 .93928 .93938 .93948 .93948 .93952 .74h .94 11m .94 11m .95957 .93962 .93967 .93972	0.86864 .85874 .86883 0.86903 .86913 .86923 .86932 .86932 .86952 .86972 0.86982 .86971 0.87001 49m 137° 10.87011 .87021 .87021	9.94175 .94180 .94184 .94189 9.94194 .94208 9.94213 .94223 .94227 9.94232 .94237 9.94242 .94251 .94256 .94251	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87563 .87573 0.87582 45m 138° 0.87562 .87602 .87602 .87611 .87621	9.94458 .94463 .94463 .94463 .94463 .94472 9.94477 .94486 .94491 9.94500 .94505 .94500 .94505 .94509 9.94514 .94519 9.94523 .74h 9h 19m 9.94537 .94537 .94537 .94542	0.88020	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	9.93279 .93284 .93289 .93295 9.93300 .93315 9.93310 .93316 .93326 .93331 .93336 9.93341 .93346 9.93351 .94 \$m 9.9356 .93362 .93362 .93372 9.93372	0.85663 .85673 .85683 0.85703 .85713 .85724 .85734 .85744 .85744 .85774 0.85785 0.85895 57m 135° 0.85815 .85825 .85825 .85835 .85835	9.93585 .93590 .93590 .93600 9.93605 .93611 .93616 .93621 .93631 .93636 .93641 9.93646 .93651 9.93656 14h 9.93666 .93661 .93666 .93661 .93666 .93661	0.86279 .86289 .86289 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369 .86389 0.86409 53m 136° 0.86419 .86429 .86438	9.93884 .93889 .93894 .93908 .93913 .93918 9.93928 .93933 .93928 .93938 9.93948 9.93952 <u>14h</u> 9h 11m 9.93957 .93962 .93967 .93972	0.86864 .89874 .86883 0.86993 .86913 .86923 .86932 .86932 .86952 .86962 .86972 0.86982 0.86982 10.87001 49m 137° 0.87011 .87021 .87030 0.87050	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94227 9.94237 9.94237 9.94242 14h 94 15m 9.94251 .94256 94266	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87553 0.87563 0.87563 .87573 0.87582 45m 138° 0.87592 .87602 .87611 .87621 0.87630	9.94458 .94463 .94468 .94477 .94482 .94486 .94491 9.94500 .94505 .94509 9.94519 9.94519 9.94523 14h 94533 .94533 .94537 .94542 9.94544	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88115 0.8813 0.88152 41 ^m 139° 0.88162 .88171 .88180 0.88199	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 5 5 5 5 6 5 5 5 5 5 5 5 5 5 5
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	9.93279 .93284 .93289 .93295 9.93300 .93315 .93316 .93326 .93331 .93336 9.93341 .93346 9.93351 14h 9h \$m 9.93356 .93362 .93362	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85764 .85774 0.85785 .85795 0.85805 .85805 .85825 .85825 .85835 .85846	9.93585 .93590 .93590 .93595 .93600 9.93605 .93611 .93626 .93621 9.93636 .93641 9.93646 .93651 9.93656 14h 9.93661 .93666 .93671 .93676	0.86279 .86289 .86289 0.86309 0.86319 .86329 .86339 0.86359 .86369 .86379 0.86499 53m 136° 0.86419 .86429 .86438 .86448 0.86458 .86468	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93928 .93933 .93928 .93934 .93948 9.93952 .74h 9.93957 .93962 .93962 .93967 .93972 9.93977 .93982	0.86864 .86874 .86884 .86893 0.86993 .86913 .86923 .86932 .86952 .86962 .86972 0.86982 .86991 0.87001 49m 137° 10.87011 .87021 .87030 .87040 0.87050 .87060	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94223 .94227 9.94232 .94237 9.94242 .74h 9.94256 .94251 .94256 .94265 .94270	0.87448 .87457 .87467 .87466 .87496 .87505 .87553 .87534 .87554 0.87553 0.87563 2.87573 0.87582 45m 138° 0.87592 .87602 .87611 0.87630 .87640	9.94458 .94463 .94468 .94477 .94482 .94486 .94496 .94505 .94505 .94509 9.94514 .94519 9.94523 .74h 9.94533 .94537 .94542 9.94546 .94551	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 .88124 0.88152 41m 139° 0.88162 .88171 .88180 .88199 .88199	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	9.93279 .93284 .93289 .93295 9.93300 .93315 9.93310 .93316 .93326 .93331 .93336 9.93341 .93346 9.93351 .94 \$m 9.9356 .93362 .93362 .93372 9.93372	0.85663 .85673 .85683 0.85703 .85713 .85724 .85734 .85744 .85744 .85774 0.85785 0.85895 57m 135° 0.85815 .85825 .85825 .85835 .85835	9.93585 .93590 .93590 .93600 9.93605 .93611 .93616 .93621 .93631 .93636 .93641 9.93646 .93651 9.93656 14h 9.93666 .93661 .93666 .93661 .93666 .93661	0.86279 .86289 .86289 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369 .86389 0.86409 53m 136° 0.86419 .86429 .86438	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93928 .93933 .93948 9.93952 .14h 9.93957 .93962 .93967 .93977 .93982 9.93987	0.86864 .89874 .86883 0.86993 .86913 .86923 .86932 .86932 .86952 .86962 .86972 0.86982 0.86982 10.87001 49m 137° 0.87011 .87021 .87030 0.87050	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94227 9.94237 9.94237 9.94242 14h 94 15m 9.94251 .94256 94266	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87554 .87554 0.87563 .87573 0.87582 45m 138° 0.87592 .87602 .87611 .87621 0.87630 .87640 .87649	9.94458 .94463 .94468 .94477 .94482 .94486 .94491 9.94500 .94505 .94509 9.94519 9.94519 9.94523 14h 94533 .94533 .94537 .94542 9.94544	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.88133 .88143 0.88152 41m 139° 0.88162 .88171 .88180 .88199 .88209 .88218	60 56 52 48 44 40 36 32 28 22 20 16 12 8 4 4 8 4 4 4 4 9 6 9 6 9 8 8 8 4 4 4 4 4 4 8 8 8 8 8 8 8 8 4 4 4 4 4 4 8
0 4 8 8 12 16 20 24 28 32 36 40 44 448 52 56 8 0 4 8 12 16 20 24	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	9.93279 9.93284 9.93289 9.93295 9.93300 9.93310 9.93316 9.93326 9.93341 9.93356 9.93351 14h 9.93356 9.93367 9.93377 9.93372 9.93377	0.85663 .85673 .85683 .85683 .85703 .85713 .85724 .85754 .85754 .85764 .85774 0.85785 .85795 0.85805 57m 135° 0.85815 .85825 .85825 .85826 .85836	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93626 .93631 .93636 .93641 9.93656 .93651 9.93656 .93651 .93666 .93671 .93676 .93671 .93666 .93681	0.86279 .86289 .86289 0.86309 0.86319 .86329 .86339 0.86359 .86369 .86379 0.86499 53m 136° 0.86419 .86429 .86438 .86448 0.86458 .86468	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93928 .93933 .93928 .93934 .93948 9.93952 .74h 9.93957 .93962 .93962 .93967 .93972 9.93977 .93982	0.86864 .86874 .86884 .86893 0.86993 .86913 .86923 .86932 .86952 .86962 .86972 0.86982 .86991 0.87001 49m 137° 10.87011 .87021 .87030 .87040 0.87050 .87060	9.94175 94180 94184 94189 9.94194 94204 94208 9.94213 94223 94227 9.94232 94237 9.94242 14h 9h 15m 9.94246 94251 94256 94261 9.94265 94275 94280	0.87448 .87457 .87467 .87466 .87496 .87505 .87553 .87534 .87554 0.87553 0.87563 2.87573 0.87582 45m 138° 0.87592 .87602 .87611 0.87630 .87640	9.94458 .94463 .94463 .94463 .94463 .94472 .9.94486 .94496 .94500 .94505 .94509 .94519 .94519 .9.94523 .74h 9.94523 .94537 .94537 .94542 9.94546 .94556 .94560	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 0.88124 0.88133 .88143 0.88152 41m 0.88162 .88171 .88180 .88190 0.88199 .88209 .88209 .88208	60 56 52 48 44 40 36 32 28 24 20 16 112 8 4
0 4 8 12 16 20 24 28 36 40 44 48 52 56 56 8 0 4 8 12 16 20 24 28 28 28 28 28 28 28 28 28 28 28 28 28	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 50 51 52	9.93279 .93284 .93289 .93295 .93300 .93315 .93316 .93326 .93331 .93336 .93351 .93346 .93351 .93366 .93352 .93367 .93362 .93362 .93367 .93372 .93372 .93382 .93382 .93387	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85774 0.85785 .85795 0.85805 57m 135° 0.85815 .85825 .85835 .85846 0.85856 .85866 .85866	9.93585 .93590 .93590 .93595 .93600 9.93605 .93611 .93626 .93631 .93636 .93641 9.93646 .93651 9.93656 14h 9.93661 .93666 .93671 .93686 .93681 .93686 .93691 .93696	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86379 0.86389 0.86409 53m 136° 0.86419 .86429 .86438 .86488	9.93884 .93889 .93894 .93899 9.93904 .93908 .93913 .93918 9.93928 .93933 .93948 9.93952 .14h 9.93957 .93962 .93967 .93977 .93982 9.93987	0.86864 .89874 .86884 .86893 0.86993 .86913 .86932 .86932 .86952 .86952 .86962 .86972 0.86982 .86991 0.87001 49m 137° 10.87011 .87021 .87030 .87040 0.87050 .87050 .87070	$\begin{array}{c} 9.94175 \\ .94180 \\ .94184 \\ .94189 \\ .94199 \\ .94204 \\ .94208 \\ .94213 \\ .94213 \\ .94223 \\ .94227 \\ .94232 \\ .94237 \\ .94232 \\ .94237 \\ .94242 \\ \hline $	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87554 .87554 0.87563 .87573 0.87582 45m 138° 0.87592 .87602 .87611 .87621 0.87630 .87640 .87649	9.94458 .94463 .94468 .94472 9.94477 .94486 .94491 9.94505 .94509 9.94514 .94519 9.94523 .14h 9.94528 .94533 .94537 .94546 9.94556	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 0.88124 0.88133 .88143 0.88152 41m 0.88162 .88171 .88180 .88190 0.88199 .88209 .88209 .88208	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 56 52 48 44 40 56 52 48 44 40 56 56 57 57 57 57 57 57 57 57 57 57 57 57 57
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 32 36 20 24 28 28 28 28 28 28 28 28 28 28 28 28 28	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 50 50 50 50 50 50 50 50 50 50 50 50	9.93279 .93284 .93289 9.93295 9.93300 .93315 9.93320 .93326 .93331 .93346 9.93341 .93346 9.93351 .93362 .93362 .93362 .93367 .93382 .93372 9.93372 9.93372 9.93372 9.93392 9.93392	0.85663 .85673 .85683 0.85703 .85713 .85724 .85734 .85744 .85744 .85774 0.85745 0.85785 .85795 0.85805 57m 135° 0.85815 .85825 .85825 .85826 .85826 .85826 .85826 .85826 .85826	9.93585 .93590 .93590 .93595 .93600 9.93605 .93611 .93626 .93631 .93636 .93641 9.93646 .93651 9.93656 -14h 9.93666 .93671 .93676 9.93681 .93686 .93696 9.93701	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369 .86389 0.86409 53m 136° 0.86419 .86428 .86458 .86468 .86478	9.93884 .93889 .93894 .93908 .93913 .93918 9.93928 .93938 9.93943 9.93948 9.93952 14h 9h 11m 9.93957 .93962 .93967 .93962 .93987 .93982 .93987 .93989 .93996	0.86864	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94223 .94237 9.94232 .94237 9.94242 .14h 9h 15m 9.94265 .94251 .94256 .94266 9.94265 .94270 .94270 .94280 9.94284	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87563 .87573 0.87582 45m 138° 0.87692 .87601 .87621 0.87630 .87649 .87649 .87659 0.87649	9.94458 .94463 .94463 .94463 .94466 .94472 .9.94486 .94496 .94500 .94505 .94509 .94519 .94519 .94519 .94523 .74h 9.94528 .94537 .94542 9.94546 .94560 .94560	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.88133 .88143 0.88152 41m 139° 0.88162 .88171 .88180 .88199 .88209 .88218	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 56 52 48 44 40 36 52 28 28 24 20 36 52 28 28 24 20 20 20 20 20 20 20 20 20 20 20 20 20
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 0 4 4 28 8 12 16 20 24 28 28 28 26 40 40 44 42 8 16 8 16 8 16 8 16 8 16 8 16 8 16 8 1	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48 49 50 51 52 53 53 54	9.93279 9.93284 9.93289 9.93295 9.93300 9.93315 9.93326 9.93326 9.93346 9.93351 144h 99.93356 9.93362 9.93362 9.93372 9.93372 9.93377 9.9382 9.93377 9.9382 9.93397 9.93403	0.85663 .85673 .85683 .85693 .85713 .85724 .85734 .85744 .85744 .85774 0.85785 .85795 0.85805 57m 135° 0.85815 .85825 .85835 .85836 .85836 .85866 .85866 .85896	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93626 .93631 .93636 .93641 9.93646 .93651 9.93656 .74h 9.93666 .93671 .93666 .93691 .93696 .93701 .93706	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86359 .86359 .86369 .86399 0.86409 53m 136° 0.86419 .86429 .86438 .86488 .86488 .86488 .86488	9.93884 .93889 .93894 .93908 .93908 .93913 .93918 9.93928 .93933 .93938 9.93948 9.93952 .74h 9.93957 .93962 .93967 .93972 .93977 .93982 .93987 .93987 .93991 .93996 .94001	0.86864 .8874 .86884 .86893 0.86993 .86913 .86923 .86932 .86952 .86952 .86972 0.86982 0.87011 .87021 .87030 0.87050 .87050 .87079 0.87079 0.87079 0.87089 .87099	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94227 9.94232 .94237 9.94242 .14h 94.251 .94256 .94261 9.94265 .94270 .94289	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87553 0.87563 0.87563 0.875792 .87602 .87611 .87621 0.87630 .87640 .87640 .87649 .87659 0.87649 .87659	9.94458 .94463 .94468 .94477 .94482 .94486 .94496 .94505 .94509 .94519 .94519 .94519 .94523 .74h 9.94528 .94533 .94537 .94546 .94551 .94560 .94560 .94560 .94560	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88115 0.88152 41m 139° 0.88162 .88171 .88180 0.88199 .88209 .88219 .88227 0.88237 .88246	60 56 52 48 44 40 36 32 28 24 20 16 12 56 56 52 48 44 40 36 32 28 28 24 20 28 28 24 20 20 20 20 20 20 20 20 20 20 20 20 20
0 4 8 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 28 28 28 28 28 28 28 28 28 28 28 28	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 54 55	9.93279 9.93284 9.93289 9.93295 9.93300 9.93310 9.93316 9.93320 9.93326 9.93341 9.93351 14h 9h gm 9.93356 9.93362 9.93362 9.93367 9.93377 9.9382 9.93377 9.93892 9.93397 9.93403 9.93403	0.85663 .85673 .85683 .85693 .85713 .85724 .85734 .85744 .85754 .85764 .85774 0.85785 0.85805 57m 135° 0.85815 .85825 .85835 .85846 0.85856 .85866 .85866 .85866 .85896 .85896 .85916	9.93585 .93590 .93595 .93605 .93605 .93611 .93616 .93621 9.93626 .93631 .93636 .93641 9.93656 14h 9h 7m 9.93666 .93671 .93676 9.93681 .93686 .93691 .93696 9.93701 .93706 .93711	0.86279 .86289 .86289 0.86309 0.86319 .86329 .86339 0.86359 .86369 .86379 0.86499 53m 136° 0.86419 .86429 .86438 .86488 0.86458 .86488 0.86458 .86498	9.93884 .93889 .93894 .93908 .93913 .93918 9.93923 .93928 .93933 .93948 9.93952 .14h 9.93957 .93962 .93967 .93972 9.93977 .93982 .93987 .93981 .93996 .94001 .94006	0.86864 .89874 .86884 .86893 0.86993 .86913 .86923 .86952 .86952 .86962 .86972 0.86982 .86991 0.87001 49m 137° 10.87011 .87021 .87040 0.87050 .87040 0.87050 .87060 .87070 .87089 .87089 .87089 .87099 .87109	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94227 9.94232 .94237 9.94242 .74h 9.94246 .94251 9.94266 .94261 9.94265 .94270 .94275 .94289 9.94284 .94289	0.87448 .87457 .87467 .87466 .87496 .87505 .87553 .87554 .87554 0.87554 0.87563 2.87573 0.87582 45m 138° 0.87692 .87602 .87611 .87621 0.87630 .87640 .87649 .87659 0.87669	9.94458 .94463 .94468 .94477 .94482 .94486 .94491 9.94505 .94509 9.94514 .94519 9.94523 .14h 9.94523 .94533 .94537 .94542 9.94566 .94566 .94566 .94560 9.94574	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.88132 41m 139° 10.88162 .88171 .88180 .88190 0.88199 .88297 0.88237 0.88237 0.88237	60 56 52 48 44 40 36 32 28 24 20 16 56 56 52 48 44 40 40 10 10 10 10 36 32 28 48 44 40 40 40 40 40 40 40
0 4 8 12 16 20 24 28 36 40 44 48 52 56 56 8 0 4 48 8 12 16 20 24 28 32 36 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 39 40 41 42 44 45 46 49 50 51 52 53 55 55 56	9.93279 .93284 .93289 .93295 .93300 .93315 .93315 .93320 .93326 .93331 .93346 .93351 .93362 .93362 .93367 .93372 .93372 .93382 .93387 .93382 .93387 .93382 .93387 .93382 .93387 .93403 .93403 .93403	0.85663 .85673 .85683 .85693 0.85703 .85713 .85724 .85734 0.85744 .85774 0.85785 .85795 0.85805 57m 135° 0.85815 .85825 .85835 .85846 0.85856 .85866 .85866 .85866 .85866 .85866 .85866 .85896 .85906 .85906	9.93585 .93590 .93590 .93595 .93600 9.93605 .93611 .93626 .93631 .93636 .93646 .93651 9.93656 14h 9h 7m 9.93661 .93666 .93671 .93686 .93681 .93686 .93691 .93706 .93701 .93706 .93711	0.86279 .86289 0.86309 .86319 .86329 0.86339 0.86349 .86379 0.86389 0.86409 53m 136° 0.86419 .86429 .86438 .86488 0.86458 .86488 .86508 .86508	9.93884 93889 93899 9.93904 9.93908 9.93913 9.93923 9.93923 9.93943 9.93952 14h 9.93957 9.93967 9.93967 9.93972 9.93977 9.93972	0.86864	9.94175 9.94180 9.94184 9.94194 9.94194 9.94208 9.94213 9.4223 9.4227 9.94232 9.4237 9.94242 14h 9.94266 9.94251 9.94266 9.94261 9.94265 9.94275 9.94280 9.94284 9.94299	0.87448 .87457 .87467 .87467 .87486 .87596 .87515 0.87525 .87534 .87554 0.87563 .87573 0.87582 45m 138° 10.87690 .87640 .87640 .87640 .87649 .87659 0.87668 .87678	9.94458 .94463 .94463 .94463 .94467 .94482 .94482 .94496 .94500 .94505 .94509 .94519 .94519 .94523 .74h .94533 .94537 .94542 .94533 .94542 .94556 .94560 .94566 .94560 .94579	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88113 0.88152 41m 139° 10.88162 .88171 .88180 .88190 0.88199 0.88297 0.88237 .88246 .88255	S S GO S S S S S S S S S
0 4 8 12 16 20 24 28 36 40 44 48 52 56 8 0 4 4 8 12 16 20 24 4 8 8 2 8 6 40 40 48 48 48 48 48 48 48 48 48 48 48 48 48	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 65 57	9.93279 9.93284 9.93289 9.93295 9.93300 9.93310 9.93316 9.93326 9.93341 9.93346 9.93351 14h 9h sm 9.93356 9.93362 9.93367 9.93372 9.93377 9.93382 9.93397 9.93403 9.93403 9.93403 9.93413	0.85663 .85673 .85683 .85693 0.85713 .85724 .85734 0.85744 .85754 .85764 .85775 0.85815 57m 135° 0.85815 .85825 .85826 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85896 .85906 .85916 .85926 0.85937	9.93585 .93590 .93590 .93595 .93600 9.93605 .93611 .93626 .93631 .93636 .93646 .93651 9.93656 .74h 9.93666 .93671 .93666 .93671 .93686 .93681 .93686 .93691 .93701 .93706 .93711 .93716 9.93721	0.86279 .86289 .86299 0.86309 .86319 .86329 .86339 0.86349 .86379 0.86389 0.86409 53m 136° 10.86419 .86428 .86488 0.86458 .86488 0.86498 .86518 .86528 0.86538	9.93884 .93889 .93894 .93904 .93908 .93913 .93918 9.93923 .93928 .93933 .93948 9.93952 	0.86864	9.94175 9.94180 9.94184 9.94194 9.94194 9.94204 9.94203 9.94213 9.94223 9.94237 9.94242 14h 9.94265 9.94261 9.94265 9.94275 9.94284 9.94284 9.94289 9.94303	0.87448 .87457 .87467 .87467 .87486 .87496 .87505 .87515 0.87525 .87534 .87554 0.87563 .87573 0.87582 45m 138° 0.87692 .87601 .87621 0.87630 .87649 .87649 .87669 .87668 .87688 .87697 0.87707	9.94458 .94463 .94463 .94463 .94463 .94472 9.94477 .94486 .94496 .94500 .94505 .94509 9.94514 .94519 9.94523 .14h 9.94533 .94533 .94533 .94534 9.94546 .94560 .94566 .94566 .94570 .94579 .94579 .94583	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88105 .88115 .88113 0.88152 41m 0.88162 .88171 .88180 .88190 0.88199 .88209 0.88218 .88227 0.88237 .88265 0.88274	S GO S6 S2 S8 S4 S6 S6 S6 S6 S6 S6 S6
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 32 36 40 44 44 44 44 44 44 44 44 44 44 44 44	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 49 50 51 52 53 55 56 57 58	9.93279 9.93284 9.93289 9.93295 9.93300 9.93315 9.93320 9.93326 9.93341 9.93351 14th 9th gm 9.93356 9.93372 9.93372 9.93372 9.93372 9.93372 9.93372 9.93373 9.93403 9.93403 9.93403 9.93418 9.93413	0.85663 .85673 .85683 .85693 0.85713 .85724 .85734 .85744 .85754 .85774 0.85785 0.85895 57m 135° 0.85815 .85825 .85825 .85826 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85966 .85916 .85916 .85926 0.85937 .85947	9.93585 .93590 .93590 .93600 9.93605 .93611 .93616 .93621 9.93626 .93631 .93636 .93641 9.93646 14h 9.93656 	0.86279 .86289 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369 .86379 0.86489 0.86419 .86429 .86438 0.86458 .86488 0.86458 .86528 0.86538 .86538	9.93884 .93889 .93894 .93908 .93913 .93918 9.93928 .93938 .93938 9.93948 9.93952 .74h 9.93957 .93962 .93967 .93962 .93967 .93972 .93967 .93987 .93987 .93987 .93987 .93987 .93987 .93987 .93987 .93987 .93987 .94016 .94011 .94016 .94021	0.86864	9.94175 .94180 .94184 .94189 9.94194 .94204 .94203 9.94213 .94223 .94227 9.94237 9.94242 .14h 94251 .94256 .94261 9.94265 .94270 .94270 .94275 .94280 9.94284 .94289 9.94294 9.94294 9.94303 .94308	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87553 0.87563 .87573 0.87582 45m 138° 0.87692 .87610 .87640 .87640 .87649 .87649 .87659 0.87669 .87668 .87678 .87688	9.94458 .94463 .94468 .94477 .94482 .94486 .94496 .94505 .94509 .94519 .94519 .94519 .94523 .74h .94533 .94533 .94537 .94546 .94551 .94566 .94566 .94570 .94574 .94574 .94578 .94588	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.8813 0.88152 41 ^m 139° 0.88162 .88171 .88180 0.88199 .88209 .88218 .88227 0.88237 .8826 0.8825 0.8825	S GO GO GO GO GO GO GO
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 20 24 28 32 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48 50 51 55 56 57 58 59	9.93279 9.93284 9.93289 9.93295 9.93300 9.93315 9.93320 9.93362 9.93361 14h 9.93356 9.93362 9.93367 9.93377 9.93372 9.93377 9.93372 9.93377 9.93382 9.93413 9.9418 9.93418 9.93418	0.85663 .85673 .85683 .85693 0.85703 .85714 .85734 0.85744 .85754 .85774 0.83785 .85795 0.85805 57m 135° 0.85815 .85825 .85835 .85846 0.85856 .85866 .85866 .85866 .85866 .85896 .85906 .85916 .85926 0.85937 .85927 .85937	9.93585 .93590 .93595 .93600 9.93605 .93611 .93616 .93626 .93631 .93636 .93641 9.93656 .74h 9.93661 .93666 .93671 .93666 .93671 .93696 9.93691 .93696 9.93711 .93716 9.93721 .93726 .93731	0.86279 .86289 .86289 0.86309 0.86319 .86329 .86339 0.86359 .86369 .86379 0.86499 .86448 0.86458 .86488 0.86488 0.86498 .86528 0.86538 .86538	9.93884 .93889 .93894 .93908 .93913 .93918 9.93928 .93933 .93928 .93938 9.93948 9.93952 .74h 9h 11m 9.93957 .93962 .93967 .93972 9.93977 .93982 .93987 .93991 9.93996 .94001 .94006 .94011 .94026	0.86864	9.94175 .94180 .94184 .94189 9.94194 .94204 .94208 9.94213 .94223 .94227 9.94232 .94237 9.94242 .14h 9h 15m 9.94266 .94261 9.94266 9.94270 .94289 .94289 9.94308 .94308 .94313	0.87448 .87457 .87467 .87466 .87496 .87505 .87534 .87554 .87554 0.87554 0.87553 0.87563 .87573 0.87562 0.87602 .87610 .87640 .87640 .87640 .87659 0.87669 .87669 .87678 .87688 .87678 .87678 .87678	9.94458 .94463 .94468 .94477 .94482 .94486 .94496 .94505 .94509 9.94519 9.94519 9.94523 .14h 9.94533 .94537 .94542 9.94546 .94551 .94566 .94566 .94566 .94566 .94574 .94574 .94578 .94588 .94588 .94588 .94588	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.88152 41m 139° 0.88162 .88171 .88180 0.88199 0.88199 .88297 0.88237 0.88265 0.88274 .88274 .88274	S S S S S S S S S S
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 32 36 40 44 44 44 44 44 44 44 44 44 44 44 44	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 49 50 51 52 53 55 56 57 58	9.93279 9.93284 9.93289 9.93295 9.93300 9.93315 9.93320 9.93362 9.93361 14h 9.93356 9.93362 9.93367 9.93377 9.93377 9.93372 9.93377 9.93372 9.93377 9.93382 9.93403 9.93418 9.93418 9.93418	0.85663 .85673 .85683 .85693 0.85713 .85724 .85734 .85744 .85754 .85774 0.85785 0.85895 57m 135° 0.85815 .85825 .85825 .85826 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85866 .85966 .85916 .85916 .85926 0.85937 .85947	9.93585 .93590 .93590 .93690 .93605 .93611 .93616 .93621 9.93626 .93631 .93636 .93641 9.93656 14h 9.93666 .93671 .93676 9.93681 .93696 .93691 .93696 .93701 .93716 9.93721 .93726 .93731 9.93731	0.86279 .86289 0.86309 .86319 .86329 .86339 0.86349 .86359 .86369 .86379 0.86489 0.86419 .86429 .86438 0.86458 .86488 0.86458 .86528 0.86538 .86538	9.93884 93889 938904 939904 939908 93913 93918 9.93923 93938 93938 93938 93948 9.93952 14h 9.93957 93962 93967 93977 93977 93987 93987 93997 94006 94011 94006 94011 94026 9.94030	0.86864	9.94175 9.94180 9.94184 9.94194 9.94194 9.94208 9.94213 9.94237 9.94232 9.4237 9.94242 14h 9.94266 9.94261 9.94266 9.94261 9.94266 9.94261 9.94275 9.94280 9.94284 9.94294 9.94299 9.94303 9.94313 9.94318	0.87448 .87457 .87467 .87466 .87496 .87505 .87515 0.87525 .87534 .87554 0.87553 0.87563 .87573 0.87582 45m 138° 0.87692 .87610 .87640 .87640 .87649 .87649 .87659 0.87669 .87668 .87678 .87688	9.94458 .94463 .94463 .94463 .94466 .94477 .94482 .94496 .94500 .94505 .94509 .94509 .94519 .94519 .94523 .74h 9.94528 .94537 .94537 .94542 9.94566 .94566 .94565 .94566 .94566 .94574 .94574 .94579 .94583 .94583 .94583 .94583 .94574 .94579 .94583 .94583 .94583 .94583 .94574 .94579 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583 .94583	0.88020 .88030 .88039 .88049 0.88058 .88068 .88077 .88086 0.88096 .88115 .88124 0.8813 0.88152 41 ^m 139° 0.88162 .88171 .88180 0.88199 .88209 .88218 .88227 0.88237 .8826 0.8825 0.8825	S GO S S S S S S S S S

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TABLE 45.

L						Haversi						
1		9h 20m	140°	9h 24m	141°	9h 28m	142°	9h 32m	143°	9h 36m	144°	1
S	'	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.		Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	s
0	0	9.94597	0.88302	9.94869	0.88857	9.95134	0.89401	9.95391	0.89932	9.95641	0.90451	60
4	1	.94602	.88312	.94874	.88866	.95138	.89409	.95396	.89941	.95645	.90459	56
8	2	.94606	.88321	.94878	.88876	.95143	.89418	.95400	.89949	.95649	.90468	52
12	3	.94611	.88330	.94883	.88885	.95147	.89427	.95404	.89958	.95654	.90476	48
16 20	4 5	9.94616 $.94620$	0.88340	9.94887 $.94892$	0.88894 .88903	9.95151	0.89436	9.95408 .95412	0.89967 .89976	9.95658 .95662	0.90485	44
24	6	.94625	.88358	.94896	.88912	.95160	.89445 .89454	.95412	.89984	.95666	.90494	40 36
28	7	.94629	.88368	.94901	.88921	.95164	.89463	.95421	.89993	.95670	.90511	32
32	8	9.94634	0.88377	9.94905	0.88930	9.95169	0.89472	9.95425	0.90002	9.95674	0.90519	28
36	9	.94638	.88386	.94909	.88940	.95173	.89481	.95429	.90010	.95678	.90528	24
40	10	.94643	.88396	.94914	.88949	.95177	.89490	.95433	.90019	.95682	.90537	20
44	11	.94648	.88405	.94918	.88958	.95182	.89499	.95438	.90028	.95686	.90545	16
48	12	9.94652	0.88414	9.94923	0.88967	9.95186	0.89508	9.95442	0.90037	9.95690	0.90553	12
52	13	.94657	.88423	.94927	.88976	.95190	.89517	.95446	.90045	.95694	.90562	8
56	14	9.94661	0.88433	9.94932	0.88985	9.95195	0.89526	9.95450	0.90054	9.95699	0.90570	4
		14h	39m	14h	35m	14h	31m	14h	27m	14h	23m	1
s	,	9h 21m	140°	9h 25m	141°	9h 29m	142°	9h 33m	143°	9h 37m	144°	s
ő	15	9.94666	0.88442	9.94936	0.88994	9.95199	0.89534	9.95454	0.90063	9.95703	0.90579	60
4	16	.94670	.88451	.94941	.89003	.95203	.89543	.95459	.90071	.97507	.90588	56
8	17	.94675	.88461	.94945	.89012	.95208	.89552	.95463	.90080	.95711	.90596	52
12	18	.94680	.88470	.94950	.89022	.95212	.89561	.95467	.90089	.95715	.90604	48
16	19	9.94684	0.88479	9.94954	0.89031	9.95216	0.89570	9.95471	0.90097	9.95719	0.90613	44
20	20	.94689	.88489	.94958	.89040	.95221	.89579	.95475	.90106	.95723	.90621	40
24 28	21 22	.94693 .94698	.88498 .88507	.94963 .94967	.89049 .89058	.95225 .95229	.89588	.95480	.90115	.95727	.90630	36
32	23	9.94702	0.88516	9.94967 9.94972	0.89067	0.95234	.89597 0.89606	.95484 9.95488	.90124 0.90132	.95731 9.95735	.90638 0.90647	32 28
36	24	.94707	.88526	.94976	.89076	.95238	.89614	.95492	.90141	.95739	.90655	24
40	25	.94711	.88535	.94981	.89085	.95242	.89623	.95496	.90150	.95743	.90664	20
44	26	.94716	.88544	.94985	.89094	.95246	.89632	.95501	.90158	.95747	.90672	16
48	27	9.94721	0.88553	9.94989	0.89103	9.95251	0.89641	9.95505	0.90167	9.95751	0.90680	12
52	28	.94725	.88563	.94994	.89112	.95255	.89650	.95509	.90176	.957 55	.90689	8
56	29	9.94730	0.88572	9.94998	0.89121	9.95259	0.89659	9.95513	0.90184	9.95759	0.90697	4
		117	0.0m	4/1	34m	- 12		412	0.0	7		
		1416	38m	1416	3411	1411	30m	1411	26m	14^n	22m	<u> </u>
s	,	9h 22m	140°	9h 26m	141°	9h 30m	30m 142°	9h 34m	26 ^m	9h 38m	22m 144°	1 ,
s 0	30					•						s 60
0 4	30 31	9h 22m 9.94734 .94739	140° 0.88581 .88590	9h 26m 9.95003 .95007	141° 0.89130 .89139	9h 30m 9.95264 .95268	142° 0.89668 .89677	9h 34m 9.95517 .95521	143° 0.90193 .90201	9h 38m	144° 0.90706 .90714	
0 4 8	30 31 32	9h 22m 9.94734 .94739 .94743	140° 0.88581 .88590 .88600	9h 26m 9.95003 .95007 .95011	141° 0.89130 .89139 .89149	9h 30m 9.95264 .95268 .95272	142° 0.89668 .89677 .89685	9h 34m 9.95517 .95521 .95526	143° 0.90193 .90201 .90210	$\begin{array}{r} 9h\ 38m \\ \hline 9.95763 \\ .95768 \\ .95772 \end{array}$	144° 0.90706 .90714 .90723	60 56 52
0 4 8 12	30 31 32 33	9h 22m 9.94734 .94739 .94743 .94748	140° 0.88581 .88590 .88600 .88609	9h 26m 9.95003 .95007 .95011 .95016	141° 0.89130 .89139 .89149 .89158	9h 30m 9.95264 .95268 .95272 .95276	142° 0.89668 .89677 .89685 .89694	9h 34m 9.95517 .95521 .95526 .95530	143° 0.90193 .90201 .90210 .90219	$\begin{array}{r} 9h\ 38m \\ \hline 9.95763 \\ .95768 \\ .95772 \\ .95776 \\ \end{array}$	144° 0.90706 .90714 .90723 .90731	60 56 52 48
0 4 8 12 16	30 31 32 33 34	9h 22m 9.94734 .94739 .94743 .94748 9.94752	140° 0.88581 .88590 .88600 .88609 0.88618	9h 26m 9.95003 .95007 .95011 .95016 9.95020	141° 0.89130 .89139 .89149 .89158 0.89167	9h 30m 9.95264 .95268 .95272 .95276 9.95281	142° 0.89668 .89677 .89685 .89694 0.89703	9h 34m 9.95517 .95521 .95526 .95530 9.95534	143° 0.90193 .90201 .90210 .90219 0.90227	9h 38m 9.95763 .95768 .95772 .95776 9.95780	144° 0.90706 .90714 .90723 .90731 0.90740	60 56 52 48 44
0 4 8 12 16 20	30 31 32 33 34 35	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757	140° 0.88581 .88590 .88609 0.88618 .88627	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025	141° 0.89130 .89139 .89149 .89158 0.89167 .89176	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285	142° 0.89668 .89677 .89685 .89694 0.89703 .89712	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95538	143° 0.90193 .90201 .90210 .90219 0.90227 .90236	9h 38m 9.95763 .95768 .95772 .95776 9.95780 .95784	144° 0.90706 .90714 .90723 .90731 0.90740 .99748	60 56 52 48 44 40
0 4 8 12 16 20 24	30 31 32 33 34 35 36	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89721	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95538 .95542	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245	9h 38m 9.95763 .95768 .95772 .95776 9.95780 .95784 .95788	144° 0.90706 .90714 .90723 .90731 0.90740 .99748 .90756	60 56 52 48 44 40 36
0 4 8 12 16 20	30 31 32 33 34 35	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95294	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89721	9h 34m 9.95517 95521 .95526 .95530 9.95534 .95538 .95542 .95546	143° 0.90193 .90201 .90219 0.90227 .90236 .90245 .90253	9h 38m 9.95763 .95768 .95772 .95776 9.95780 .95784 .95783 .95792	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90756	60 56 52 48 44 40 36 32
0 4 8 12 16 20 24 28	30 31 32 33 34 35 36 37	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89721	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95538 .95542	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245	9h 38m 9.95763 .95768 .95772 .95776 9.95780 .95784 .95788	144° 0.90706 .90714 .90723 .90731 0.90740 .99748 .90756	60 56 52 48 44 40 36
0 4 8 12 16 20 24 28 32 36 40	30 31 32 33 34 35 36 37 38 39 40	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94766 9.94770 .94774 .94779	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88646 0.88655 .88664 .88674	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95029 .95033 9.95038 .95042 .95047	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89221	9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95294 9.95298 .95302 .95306	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89721 .89730 0.89738 .89747	9.85517 9.95517 9.95521 95526 95530 9.95534 9.95538 95546 9.95550 95555 95559	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279	9.95763 .95768 .95776 .95776 .95776 .95780 .95784 .95792 .9.95796 .95800 .95804	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90756 0.90765 0.90773 .90792	60 56 52 48 44 40 36 32 28
0 4 8 12 16 20 24 28 32 36 40	30 31 32 33 34 35 36 37 38 39 40 41	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766 9.94770 .94774 .94779 .94784	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88693	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95038 9.95038 .95042 .95047 .95051	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89221 .89230	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95294 9.95298 .95306 .95311	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756	9h 34m 9.95517 .95521 .95526 .95534 .95534 .95542 .95546 9.95550 .95555 .95559	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95784 .95783 .95792 9.95796 .95804 .95808	144° 0.90706 .90714 .90723 .90731 0.90740 .90745 .90765 0.90773 .90792	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766 9.94770 .94774 .94779 .94784 9.94788	140° 0.88581 .88590 .88609 0.88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88693 0.88692	9h 26m 9.95003 .95007 .95011 .95016 9.95025 .95025 .95029 .95033 9.95038 .95042 .95047 .95051 9.95055	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89221 .89230 0.89239	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95294 9.95298 .95306 .95311 9.95315	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 0.89774	9h 34m 9.95517 .95521 .95526 .95534 .95534 .95538 .95542 .95546 9.95550 .95555 .95559 .95563 9.95563	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296	9h 38m 9.95763 .95768 .95772 .95776 9.95780 .95784 .95784 .95782 9.95792 9.95796 .95804 .95808 9.95812	144° 0.90706 .90714 .90723 .90731 0.90748 .90765 0.90773 .90792 .90798 0.90807	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766 9.94770 .94774 .94779 .94788 9.94788 .94793	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .8864 .88674 .88683 0.88692 .88701	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 .95042 .95047 .95051 9.95055 .95060	141° 0.89130 .89139 .89149 .89167 .89167 .89176 .89185 .89194 0.89203 .89212 .89221 .89230 0.89239 .89248	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 .95298 .95302 .95306 .95311 9.95315 .95319	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 0.89774	9h 34m 9.95517 .95521 .95526 .95534 .95538 .95542 .95546 9.95550 .95555 .95559 .95567 .95571	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95784 .95792 9.95796 .95800 .95804 .95808 9.95812 .95816	144° 0.90706 .90714 .90723 .90731 0.90748 .90756 .90765 0.90773 .90792 .90798 0.90807	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	9h 22m 9.94734 .94739 .94743 .94743 .947452 .94752 .94761 .94766 9.94770 .94774 .94779 .94788 .94793 9.94793 9.94797	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88644 .88674 .88683 0.88692 .88701 0.88710	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 9.95038 .95042 .95047 .95051 9.95055 .95060 9.95064	141° 0.89130 .89139 .89149 .89167 .89167 .89176 .89185 .89194 0.89203 .89212 .89221 .89230 0.89239 .89248 0.89257	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 .95298 .95302 .95306 .95311 9.95315 .95319 9.95323	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 0.89774 .89783 0.89781	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95542 .95546 9.95550 .95555 .95559 .95563 9.95567 .95571 9.95575	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95784 .95792 9.95796 .95800 .95804 .95808 9.95812 .95816 9.95820	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90766 0.90773 .90792 .90790 .90798 0.90807 .90815 0.90824	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9h 22m 9.94734 .94739 .94743 .94748 9.94757 .94761 .94766 9.94770 .94774 .94779 .94784 9.94788 .94793 9.94797 .14h	140° 0.88581 .88590 .88609 0.88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88693 0.88692 .88701 0.88710	9h 26m 9.95003 .95007 .95011 .95016 9.95025 .95029 .95033 9.95038 .95042 .95047 .93051 9.95055 .95060 9.95064 14h	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89221 .89220 0.89239 .89248 0.89257	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95294 9.95306 .95306 .95311 9.95315 .95319 9.95323 14h	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 0.89774 .89783 0.89791	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95542 .95546 9.95550 .95555 .95559 .95563 9.95567 .95571 9.95575 14h	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314	9h 38m 9.95763 .95768 .95772 .95776 9.95780 .95784 .95783 .95792 9.95796 .95804 .95808 9.95812 .95816 9.95820 .14h	144° 0.90706 .90714 .90723 .90731 0.90748 .90765 0.90765 0.90792 .90790 .90798 0.90807 .90815 0.90824	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9h 22m 9.94734 .94739 .94743 9.94743 9.94752 .94757 .94761 .94766 9.94770 .94774 .94779 .94788 .94793 9.94797 .94788	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88644 .88674 .88683 0.88692 .88701 0.88710 37m	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 .95042 .95047 .95051 9.95055 .95060 9.95064 14h	141° 0.89130 .89139 .89149 .89167 .89166 .89185 .89194 0.89203 .89212 .89221 .89230 0.89239 .89248 0.89257 33m 141°	9h 30m 9.95264 .95268 .95272 .95276 .95281 .95285 .95294 .95298 .95302 .95306 .95311 9.95315 .95319 9.95323 14h 9h 31m	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.89774 .89783 0.89791	9h 34m 9.95517 .95521 .95526 .95534 .95534 .95542 .95546 9.95550 .95555 .95557 .95567 .95571 9.95575 14h 9h 35m	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90304 25m 143°	9h 38m 9.95763 .95768 .95776 .95776 9.95784 .95784 .95792 9.95796 .95800 .95804 .95808 9.95812 .95816 9.95820 14h 9h 39m	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90766 .90765 0.90763 0.90773 .90792 .90790 .90815 0.90824 21m 144°	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9h 22m 9.94734 .94739 .94743 .94743 .947452 .94757 .94761 .94766 9.94770 .94774 .94779 .94784 9.94783 9.94797 14h 9h 23m 9.94802	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88644 .88655 .88664 .88674 .88693 0.88692 .88701 0.88710 37m 140° 0.88720	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 9.95038 .95042 .95047 .95051 9.95055 .95060 9.95064 14h 9h 27m 9.95069	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89239 0.89248 0.89257 33m 141° 0.89266	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95298 .95302 .95306 .95311 9.95315 .95319 9.95323 14h 9.95328	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .59765 0.89774 .89783 0.89791 29m 142° 0.89800	$\begin{array}{c} 9h\ 34m \\ \hline 9.95517 \\ .95521 \\ .95526 \\ .95530 \\ .95534 \\ .95538 \\ .95542 \\ .95550 \\ .95550 \\ .95550 \\ .95553 \\ .95563 \\ .95563 \\ .95571 \\ .95571 \\ .9.95575 \\ \hline .44h \\ \hline .9h\ 35m \\ \hline .9.95579 \\ \hline .9.9579 \\ \hline .9.95579 \\ $	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314 25m 143°	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95792 9.95796 .95800 .95804 .95808 9.95812 .95816 9.95820 14h 9h 39m 9.95824	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90756 .90765 0.90773 .90792 .90790 .90807 .90815 0.90824 21m 144° 0.90832	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94761 .94766 9.94770 .94774 .94779 .94784 9.94783 9.94797 14h 9h 23m 9.94802 .94806	140° 0.88581 .88590 .88600 .88600 0.88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88692 .88701 0.88710 37m 140° 0.88720 .88729	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 9.95038 .95042 .95047 .95051 9.95050 9.95060 9.95064 14h 9h 27m 9.95069 .95073	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89239 0.89257 33m 141° 0.89266 .89275	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 9.95298 .95302 .95311 9.95315 .95319 9.95323 .14h 9h 31m 9.95328 .95332	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.898991 29m 142° 0.89800 .89809	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95542 .95546 9.95555 .95555 .95559 .95563 9.95563 9.95571 9.95571 9.95575 14h 9h 35m 9.95579 .95584	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314 25m 143° 0.90322 .90331	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95792 9.95796 .95800 .95804 .95808 9.95816 9.95816 9.95820 14h 9h 39m 9.95824 .95828	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90765 .90765 .90765 0.90773 .90792 .90790 .90807 .90815 0.90824 21m 144° 0.90832 .90840	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9h 22m 9.94734 .94739 .94743 .94743 .947452 .94757 .94761 .94766 9.94770 .94774 .94779 .94788 .94793 .94793 .94797 .94802 .94806 .94811	140° 0.88581 .88590 .88600 .88600 .88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88692 .88701 0.88710 37m 140° 0.88720 .88729 .88729	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95029 .95033 9.95038 .95042 .95047 .95051 9.95055 .95060 9.95064 14h 9h 27m 9.95069 .95073 .95077	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89221 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 9.95298 .95306 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95332 .95336	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.89774 .89783 0.898991 29m 142°	9h 34m 9.95517 .95521 .95526 .95534 .95534 .95542 .95546 9.95555 .95555 .95557 .95571 .95575 .95575 .95579 .95579 .95584 .95584 .95584	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314 25m 143°	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95784 .95789 9.95796 .95800 .95804 .95808 9.95812 .95816 9.95820 .14h 9h 39m 9.95824 .95828 .95828	144° 0.90706 .90714 .90723 .90731 0.90748 .90765 .90765 0.90773 .90792 .90790 .90807 .90815 0.90824 21m 144° 0.90832 .90840 .90849	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 47 48	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766 9.94770 .94774 .94779 .94788 .94793 9.94797 14h 9h 23m 9.94802 .94806 .94811 .94815	140° 0.88581 .88590 .88609 .88609 .88618 .88627 .88637 .88646 .88655 .88664 .88674 .88683 0.88692 .88701 0.88710 37m 140° 0.88720 .88729 .88729 .88738	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95038 9.95042 .95047 .95051 9.95055 .95060 9.95064 14h 9h 27m 9.950673 .95077 .95082	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89221 .89221 .89220 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 9.95298 .95306 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95336 .953340	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 0.89774 .89783 0.89791 29m 142° 0.89800 .89808	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95542 .95546 9.95550 .95555 .95559 .95563 9.95571 9.95575 14h 9h 35m 9.95588 .95588 .95592	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314 25m 143° 0.90322 .90331 .90339 .90348	9h 38m 9.95763 .95768 .95776 9.95780 .95784 .95783 .95792 9.95796 .95804 .95808 9.95812 .95816 9.95820 14h 9h 39m 9.95824 .95828 .95832 .95836	144° 0.90706 .90714 .90723 .90731 0.90740 .90765 .90765 0.90773 .90792 .90790 0.90821 21m 144° 0.90832 .90840 .90849 .90857	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 44 45 46 47 48 49	9h 22m 9.94734 .94739 .94743 .94743 .94748 9.94752 .94761 .94766 9.94770 .94774 .94779 .94788 .94788 .94793 9.94797 14h 9h 23m 9.94806 .94811 .94815 9.94820	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88644 .88655 .88664 .88674 .88693 0.88692 0.88710 37m 140° 0.88720 .88729 .88738 .88747 0.88756	9h 26m 9.95003 .95007 .95011 .95016 .95020 .95025 .95029 .95038 .95042 .95047 .95055 .95060 9.95064 14h 9h 27m 9.95069 .95077 .95082 9.95086	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293 0.89302	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95298 .95302 .95306 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95330 .95340 9.75345	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .59765 0.89774 .89783 0.89791 29m 142° 0.89800 .89809 .89818 .89827 0.89835	$\begin{array}{c} 9h\ 34m \\ \hline 9.95517 \\ .95521 \\ .95526 \\ .95530 \\ .95534 \\ .95538 \\ .95542 \\ .95546 \\ .95550 \\ .95550 \\ .95553 \\ .95563 \\ .95567 \\ .95571 \\ \hline 9.95575 \\ \hline 14h \\ \hline \hline 9h\ 35m \\ \hline 9.95579 \\ .95584 \\ .95582 \\ .95592 \\ .9.9596 \\ \end{array}$	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314 25m 143° 0.90322 .90331 .90339 .90348 0.90357	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95796 .95800 .95804 .95808 9.95816 9.95816 9.95820 14h 9h 39m 9.95824 .95836 9.95836 9.95836	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90756 .90765 0.90773 .90792 .90790 .90815 0.90824 21m 144° 0.90832 .90840 .90849 .90857 0.90866	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 47 48	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766 9.94770 .94774 .94779 .94788 .94793 9.94797 14h 9h 23m 9.94802 .94806 .94811 .94815	140° 0.88581 .88590 .88609 .88609 .88618 .88627 .88637 .88646 .88655 .88664 .88674 .88683 0.88692 .88701 0.88710 37m 140° 0.88720 .88729 .88729 .88738	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95038 9.95042 .95047 .95051 9.95055 .95060 9.95064 14h 9h 27m 9.950673 .95077 .95082	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89221 .89221 .89220 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 9.95298 .95306 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95336 .953340	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 0.89774 .89783 0.89791 29m 142° 0.89800 .89808	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95542 .95546 9.95550 .95555 .95559 .95563 9.95571 9.95575 14h 9h 35m 9.95588 .95588 .95592	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 0.90314 25m 143° 0.90322 .90311 .90339 .90348 0.90357 .90365	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95784 .95796 .95800 .95804 .95816 9.95816 9.95820 14h 9h 39m 9.95824 .95836 9.95836 9.95840 .95836 9.95840	144° 0.90706 .90714 .90723 .90731 0.90740 .90765 .90765 0.90773 .90792 .90790 0.90821 21m 144° 0.90832 .90840 .90849 .90857	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 8 12 16 20 22 36 40 44 44 48 52 56 0 4 8 12 16 20 22 42 48 25 25 6 6 20 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 39 41 42 43 44 45 46 47 48 49 50 51 51 52	9h 22m 9.94734 .94739 .94743 .94743 .94745 .94757 .94761 .94766 9.94774 .94779 .94784 9.94788 .94793 .94797 .14h 9h 23m 9.94802 .94806 .94811 .94815 9.94824 .94824 .94829 .94833	140° 0.88581 .88590 .88600 .88600 .88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88692 .88701 0.88710 37m 140° 0.88720 .88729 .88738 .88747 0.88756 .88775 .88784	9h 26m 9.95003 .95007 .95016 9.95020 .95025 .95029 .95033 9.95038 .95042 .95047 .95051 9.95060 9.95064 14h 9h 27m 9.95069 .95073 .95082 9.95086 .95090 .95095 .95099	141° 0.89130 .89139 .89149 .89167 .89167 .89176 .89185 .89213 0.89230 .89212 .89221 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293 0.89302 .89311 .89320 .89329	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 .95302 .95306 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95336 .95340 9.75345 .95353 .95353 .95353	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.89774 .89783 0.89791 29m 142° 0.89800 .89809 .89818 .89827 0.89835 .89844 .89853	9h 34m 9.95517 .95521 .95526 .95534 .95534 .95538 .95542 .95555 .95559 .95556 .95575 .95575 .14h 9h 35m 9.95575 .95584 .95584 .95584 .95584 .95586 .95600 .95600	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90305 0.90314 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382	9h 38m 9.95763 9.95768 9.95776 9.95776 9.95784 95782 9.95796 9.95800 95804 95808 9.95812 95816 9.95820 14h 9h 39m 9.95824 95828 95832 95836 9.95840 95844 95848 95852	144° 0.90706 .90714 .90723 .90731 0.90748 .90765 .90765 0.90773 .90792 .90790 .90807 .90815 0.90824 21m 144° 0.90824 2.90840 .90849 .90857 0.90866 .90874 .90882 .90884	60 56 52 48 44 40 36 32 28 28 20 16 12 8 4 4 60 56 52 48 44 40 40 36 32 28 42 42 42 42 42 42 42 43 44 44 44 44 44 44 44 44 44 44 44 44
0 4 8 12 16 20 24 28 36 40 44 44 8 52 56 8 0 4 12 16 20 24 28 36 28 32 36 40 24 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 49 50 51 52 53	9h 22m 9.94734 .94739 .94743 .94743 .94748 9.94752 .94761 .94766 9.94770 .94774 .94779 .94788 .94793 9.94797 14h 9h 23m 9.94806 .94811 .94815 9.94820 .94824 .94829 .94833 9.94838	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88683 0.88692 .88701 0.88710 37m 140° 0.88720 .88729 .88747 0.88756 .88766 .88766	9h 26m 9.95003 .95007 .95011 .95016 .95020 .95025 .95029 .95038 .95042 .95047 .95055 .95060 9.95064 14h 9h 27m 9.95069 .95073 .95073 .95073 .95073 .95079 .95099 9.95104	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89212 .89221 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293 0.89389 0.89389	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95298 .95302 .95306 .95311 9.95315 .95319 9.95323 	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .59765 0.89774 .89783 0.89791 29m 142° 0.89800 .89809 .89818 .89827 0.89835 .89844 .89853 .89862 0.89870	9h 34m 9.95517 9.95521 9.95526 9.95534 9.95534 9.95550 9.95550 9.95567 9.95567 9.95571 9.95579 9.95584 9.95588 9.95589 9.95584 9.95608 9.95608 9.95608	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90271 .90279 .90288 0.90288 0.90296 .903014 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382 0.90391	9h 38m 9.95763 9.95768 9.95776 9.95778 9.95784 9.95796 9.95800 9.95804 9.95812 9.95816 9.95820 14h 9h 39m 9.95824 9.95836 9.95836 9.95840 9.95844 9.95848 9.95840 9.95844	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90756 .90765 0.90773 .90792 .90790 .90890 0.90807 .90815 0.90824 21m 144° 0.90832 .90840 .90849 .90857 0.90866 .90874 .908891 0.90899	60 56 52 48 44 40 36 32 28 20 16 12 8 4 4 60 56 52 48 44 40 36 32 28 28 20 20 36 36 36 36 36 36 36 36 36 36
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 56 8 12 116 20 24 28 8 23 6 6 10 10 10 10 10 10 10 10 10 10 10 10 10	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 45 46 47 48 49 50 51 51 52 53 54	9h 22m 9.94734 .94739 .94743 .94743 .94748 9.94752 .94761 .94766 9.94770 .94774 .94779 .94784 9.94783 9.94797 14h 9h 23m 9.94802 .94806 .94815 9.94820 .94824 .94829 .94838 .94838 .94842	140° 0.88581 .88590 .88600 .88600 .88609 0.88618 .88627 .88637 .88644 .88655 .88664 .88674 .88683 0.88692 .88701 0.88720 .88720 .88729 .88738 .88747 0.88756 .88766 .88756 .88766 .88775 .88784 0.88793 .88892	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 9.95038 .95042 .95047 .95055 .95060 9.95064 14h 9h 27m 9.95077 .95082 9.95082 9.95082 9.95086 .95090 .95099 9.95104 .95108	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89284 0.89393 0.89393 0.89302 .89311 .89320 0.89338 .89347	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95298 .95302 .95306 .95311 9.95315 .95319 9.95323 14h 9.95328 .95332 .95340 9.75345 .95349 .95353 .95357 9.95366	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89738 .89747 .89756 .89764 .89783 0.89791 29m 142° 0.89800 .89809 .89818 .89827 0.89835 .89844 .89853 .89862 0.89879	9h 34m 9.95517 9.95521 9.95526 9.95534 9.95538 9.95542 9.95550 9.95550 9.95563 9.95563 9.95571 9.95571 9.95575 14h 9h 35m 9.95584 9.95584 9.95588 9.95600 9.9600 9.9604 9.9608 9.96613	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90271 .90279 .90288 0.90296 0.90314 25m 143° 0.90322 .90331 .90339 0.90348 0.90357 .90365 .90374 .90357 .90365 .90374 .90399	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95796 .95800 .95804 .95808 9.95816 9.95816 9.95820 14h 9h 39m 9.95824 .95828 .95836 9.95840 .95848 .95848 .95848 .95848 .95848 .95848 .95848 .95856	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90765 .90765 0.90765 0.90782 .90790 .90807 .90815 0.90824 21m 144° 0.90832 .90840 .90849 .90857 0.90866 .90874 .90882 .90891 .90889	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 60 56 52 48 44 40 36 52 28 28 24 20 28 28 24 20 26 26 26 27 28 28 28 28 28 28 28 28 28 28 28 28 28
8 12 16 20 24 428 52 56 S 0 44 88 12 16 20 24 428 32 36 40 44 48 8 12 66 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 40 41 42 44 44 45 46 47 48 49 55 51 55 55	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94761 .94766 9.94770 .94774 .94779 .94784 9.94788 9.94797 14h 9h 23m 9.94802 .94806 .94811 .94815 9.94824 .94829 .94833 9.94838 9.94838 .94834 .94842 .94847	140° 0.88581 .88590 .88600 .88600 0.88618 .88627 .88646 0.88655 .88664 .88674 .88693 0.88692 .88710 37m 140° 0.88720 .88747 0.88756 .88747 0.88756 .88766 .88766 .88766 .88766 .88766 .88766 .88766 .88766 .88766 .88784 0.88793 .888811	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95038 9.95042 .95047 .95051 9.95050 9.95060 9.95064 14h 9h 27m 9.95077 .95082 9.95086 .95090 .95095 .95099 9.95104	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89239 .89248 .89257 33m 141° 0.89266 .89275 .89284 .89293 0.89302 .89311 .89320 .89329 0.89338 .89347 .89356	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95294 9.95298 .95306 .95311 9.95315 .95319 9.95323 14h 9.95328 .95336 .95340 9.75345 .95353 .95357 9.95366 .95370	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.89774 29m 142° 0.89800 .89809 .89818 .89827 0.89835 .89844 .89853 .89862 0.89879 .89888	9h 34m 9.95517 .95521 .95526 .95534 .95534 .95542 .95556 .95555 .95559 .95563 9.95563 9.95571 9.95575 14h 9h 35m 9.95588 .95588 .95592 9.95596 .95600 .95604 .95608 9.96613 .95617 .95621	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90388 0.90396 .90314 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382 0.90391 .90399 .90408	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95792 9.95796 .95800 .95804 .95816 9.95816 9.95820 14h 9h 39m 9.95824 .95836 9.95840 .95844 .95848 .95852 .9 95856 .95860 .95860	144° 0.90706 .90714 .90723 .90731 0.90748 .90765 .90765 0.90773 .90792 .90790 .90815 0.90824 21m 144° 0.90832 .90840 .90849 .90857 0.908524 .90849 .90857 0.90852 .90899 .90899	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 40 56 52 48 44 40 36 52 28 28 24 20 56 56 52 48 44 40 56 56 57 48 40 56 56 57 57 57 57 57 57 57 57 57 57 57 57 57
8 12 16 20 24 48 52 56 8 12 16 20 44 44 88 52 56 20 44 88 12 16 20 24 28 32 36 40 44	30 31 32 33 33 35 36 37 38 39 40 41 42 43 44 49 50 51 52 53 55 55 56	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766 9.94774 .94779 .94784 9.94788 .94793 14h 9.94802 .94806 .94811 .94815 9.94820 .94824 .94829 .94838 9.94838 .94838 .94838 .94838 .94842 .94851	140° 0.88581 .88590 .88600 .88600 0.88618 .88627 .88637 .88646 0.88655 .8664 .88674 .88692 .88701 0.88710 37m 140° 0.88720 .88720 .88747 0.88756 .89766 .89766 .89766 .88775 .88784 0.88793 .88893 .88893 .88893 .88893	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 9.95038 .95042 .95047 .95051 9.95056 .95060 9.95066 .95069 .95077 .95082 9.95086 .95090 .95095 .95090 9.95104 .95108 .95112 .95117	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89239 .89248 .89257 33m 141° 0.89266 .89275 .89284 .89293 0.89302 .89311 .89320 .89338 .89347 .89356 .89365	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95306 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95340 9.75345 .95340 9.75345 .95340 9.75345 .95340 9.75345 .95349 .95353 .95362 .95366 .95370 .95374	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .99765 0.89774 .89783 0.89899 .89818 .89827 0.89835 .89844 .89853 .89862 0.89879 .89879	9h 34m 9.95517 .95521 .95526 .95534 .95534 .95536 .95555 .95556 .95556 .95567 .95577 .95577 .95600 .95604 .95608 9.95613 .95621 .95625	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .90305 0.90314 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382 0.90391 .90399 .90408 .90417	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95792 9.95796 .95800 .95804 .95816 9.95812 .95816 9.95824 .95828 .95828 .95832 .95836 9.95844 .95848 .95852 .95856 .95860 .95864 .95868	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90765 0.90773 .90792 .90790 .90807 .90815 0.90824 21m 144° 0.90832 .90840 .90849 .90857 0.90866 .90874 .90882 .90891 0.90899 .90907	60 56 52 48 44 40 36 32 28 24 20 16 56 52 48 44 40 56 52 28 48 44 40 56 52 48 40 56 57 48 48 40 40 56 57 48 48 48 49 40 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 24 28 32 36 40 44 44 8 52 56 8 12 16 20 24 28 32 36 40 20 44 48 85 25 56 40 26 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 49 50 51 55 55 56 57	9h 22m 9.94734 .94739 .94743 .94743 .94748 9.94752 .94761 .94766 9.94770 .94774 .94779 .94788 .94793 9.94797 14h 9h 23m 9.94806 .94811 .94815 9.94820 .94824 .94829 .94833 9.94838 .94842 .94831 9.94851 9.94856	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88646 .88674 .88683 0.88692 .88701 0.88710 37m 140° 0.88720 .88729 .88729 .88747 0.88756 .88766 .88764 0.88793 .88893 .88893	9h 26m 9.95003 .95007 .95011 .95016 .95020 .95025 .95029 .95038 .95042 .95047 .95051 .95060 9.95064 14h 9h 27m 9.95069 .95073 .95077 .95082 9.95086 .95090 .95099 9.95104 .95108 .95112 9.95121	141° 0.89130 .89139 .89149 .89167 .89166 .89185 .89194 0.89203 .89212 .89221 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293 0.89382 .89311 .89320 0.89338 .89347 .89356 0.89374	9h 30m 9.95264 .95268 .95272 .95276 .95281 .95285 .95289 .95298 .95302 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95336 .95340 9.75345 .95359 .95357 9.95366 .95374 9.95374 9.95374 9.95379	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.89774 .89783 0.89791 29m 142° 0.89800 .89809 .89818 .89827 0.89835 .89844 .89853 .89862 0.89870 .89879 .898862 0.89870 .898897	9h 34m 9.95517 9.95521 9.95526 9.95534 9.95534 9.95550 9.95550 9.95567 9.95571 9.95571 9.95579 9.95579 9.95584 9.95588 9.95592 9.95596 9.95608 9.95608 9.95617 9.95625 9.95625	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .903014 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382 0.90391 .90399 .90408 .90417 0.90425	9h 38m 9.95763 9.95768 9.95776 9.957780 9.95784 9.95796 9.95800 9.95804 9.95812 9.95816 9.95820 14h 9h 39m 9.95824 9.95828 9.95836 9.95840 9.95840 9.95840 9.95848 9.95852 9.95856 9.95860 9.95868 9.95872	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90766 .90765 0.90773 .90792 .90790 .908807 .90815 0.90824 21m 144° 0.90832 .90840 .90840 .90857 0.90866 .90874 .90882 .90891 0.90899 .90907 .90916 .90933	60 52 48 44 40 36 32 28 24 20 16 12 8 4 4 60 56 52 48 44 40 36 52 28 28 24 40 26 27 28 28 40 40 40 40 40 40 40 40 40 40 40 40 40
8 12 16 20 24 48 52 56 8 12 16 20 44 44 88 52 56 20 44 88 12 16 20 24 28 32 36 40 44	30 31 32 33 33 35 36 37 38 39 40 41 42 43 44 49 50 51 52 53 55 55 56	9h 22m 9.94734 .94739 .94743 .94748 9.94752 .94757 .94761 .94766 9.94774 .94779 .94784 9.94788 .94793 14h 9.94802 .94806 .94811 .94815 9.94820 .94824 .94829 .94838 9.94838 .94838 .94838 .94838 .94842 .94851	140° 0.88581 .88590 .88600 .88600 .88609 0.88618 .88627 .88637 .88646 0.88655 .88664 .88674 .88683 0.88692 .88701 0.88720 .88720 .88720 .88720 .88747 0.88756 .88766 .88775 .88784 0.88793 .88811 .88821 0.88839	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95038 .95042 .95047 .95055 .95060 9.95064 14h 9h 27m 9.95077 .95082 9.95086 .95090 .95099 9.95112 .95117 9.95125	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293 0.89302 .89311 .89320 0.89384 .89383 0.893838 .89347 .89356 0.89374 .89383	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95302 .95306 .95311 9.95313 14h 9.95328 .95332 .95336 .95340 9.75345 .95349 .95353 .95366 .95370 .95379 .95389	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .59765 0.89774 29m 142° 0.89800 .89809 .89818 .89852 0.89835 .89814 .89853 .89857 0.89879 .89859 .89859 0.89899 .89819 .89859 0.89899 .89814	9h 34m 9.95517 9.95521 9.95526 9.95534 9.95534 9.95546 9.95550 9.95550 9.95563 9.95563 9.95571 9.95575 14h 9h 35m 9.95584 9.95584 9.95582 9.95584 9.95608 9.95604 9.95608 9.95608 9.95613 9.95621 9.95633	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90271 .90279 .90288 0.90296 .90305 0.90314 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382 0.90391 .90399 .90408 .90417 0.90425 .90434	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95796 .95800 .95804 .95808 9.95816 9.95820 14h 9h 39m 9.95824 .95836 9.95836 9.95840 .95848 .95848 .95848 .95848 .95848 .95848 .95848 .95848 .95856 .95860 .95864 .95868	144° 0.90706 .90714 .90723 .90731 0.90748 .90756 .90765 0.90765 0.90782 .90798 0.90807 .90815 0.90824 21m 144° 0.90832 .90840 .90849 .90857 0.90866 .90874 .90881 0.90899 .90994 0.90899 .90916 .90924 0.90933 .90941	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 40 36 56 52 48 44 40 36 56 52 48 42 40 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 24 4 8 82 36 40 44 8 82 16 20 24 4 88 22 36 40 44 48 85 25 36 40 44 48 85 2	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 45 50 51 55 55 57 58	9h 22m 9.94734 .94739 .94743 .94743 .94748 9.94752 .94757 .94761 .94766 9.94770 .94774 .94779 .94784 9.94783 9.94797 14h 9h 23m 9.94802 .94806 .94811 .94815 9.94820 .94824 .94829 .94833 9.94833 9.94838 .94842 .94847 .94856 .94860	140° 0.88581 .88590 .88600 .88609 0.88618 .88627 .88637 .88646 .88674 .88683 0.88692 .88701 0.88710 37m 140° 0.88720 .88729 .88729 .88747 0.88756 .88766 .88764 0.88793 .88893 .88893	9h 26m 9.95003 .95007 .95011 .95016 .95020 .95025 .95029 .95038 .95042 .95047 .95051 .95060 9.95064 14h 9h 27m 9.95069 .95073 .95077 .95082 9.95086 .95090 .95099 9.95104 .95108 .95112 9.95121	141° 0.89130 .89139 .89149 .89167 .89166 .89185 .89194 0.89203 .89212 .89221 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293 0.89382 .89311 .89320 0.89338 .89347 .89356 0.89374	9h 30m 9.95264 .95268 .95272 .95276 .95281 .95285 .95289 .95298 .95302 .95311 9.95315 .95319 9.95323 14h 9h 31m 9.95328 .95336 .95340 9.75345 .95359 .95357 9.95366 .95374 9.95374 9.95374 9.95379	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.89774 .89783 0.89791 29m 142° 0.89800 .89809 .89818 .89827 0.89835 .89844 .89853 .89862 0.89870 .89879 .898862 0.89870 .898897	9h 34m 9.95517 9.95521 9.95526 9.95534 9.95534 9.95550 9.95550 9.95567 9.95571 9.95571 9.95579 9.95579 9.95584 9.95588 9.95592 9.95596 9.95608 9.95608 9.95617 9.95625 9.95625	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90296 .903014 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382 0.90391 .90399 .90408 .90417 0.90425	9h 38m 9.95763 9.95768 9.95776 9.957780 9.95784 9.95796 9.95800 9.95804 9.95812 9.95816 9.95820 14h 9h 39m 9.95824 9.95828 9.95836 9.95840 9.95840 9.95840 9.95848 9.95852 9.95856 9.95860 9.95868 9.95872	144° 0.90706 .90714 .90723 .90731 0.90740 .90748 .90766 .90765 0.90773 .90792 .90790 .908807 .90815 0.90824 21m 144° 0.90832 .90840 .90840 .90857 0.90866 .90874 .90882 .90891 0.90899 .90907 .90916 .90933	60 52 48 44 40 36 32 28 24 20 16 12 8 4 4 60 56 52 48 44 40 36 52 28 28 24 40 26 27 28 28 40 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 24 428 36 40 44 48 28 32 36 40 44 44 48 32 36 40 44 48 55 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 45 50 51 55 55 55 56 57 58 59	9h 22m 9.94734 .94739 .94743 .94743 9.94752 .94757 .94761 .94766 9.94774 .94779 .94784 9.94788 9.94797 14h 9h 23m 9.94802 .94806 .94811 .94815 9.94824 .94829 .94838 9.94838 9.94836 .94842 .94826 .94851 9.94856	140° 0.88581 .88590 .88600 .88600 0.88618 .88627 .88637 .88644 .88655 .88664 .88674 .88693 0.88692 .88701 0.88710 37m 140° 0.88720 .88720 .88738 .88747 0.88756 .88756 .88756 .88756 .88784 0.88793 .88881 0.88830 .88830 .88830	9h 26m 9.95003 .95007 .95011 .95016 9.95020 .95025 .95029 .95033 9.95038 .95042 .95047 .95051 9.95055 .95060 9.95064 14h 9h 27m 9.95077 .95082 9.95086 .95090 .95095 .95090 .95121 .95112 .95121 .95125 .95130	141° 0.89130 .89139 .89149 .89158 0.89167 .89176 .89185 .89194 0.89203 .89212 .89230 0.89239 .89248 0.89257 33m 141° 0.89266 .89275 .89284 .89293 0.89302 .89311 .89320 0.89338 .89347 .89356 .89365 0.89374 .89383 .89392 0.89374	9h 30m 9.95264 .95268 .95272 .95276 9.95281 .95285 .95289 .95298 .95302 .95306 .95311 9.95313 14h 9.95328 .95332 .95336 .95340 9.75345 .95349 .95353 .95357 9.95366 .95370 .95379 .95383 .95379 .95383	142° 0.89668 .89677 .89685 .89694 0.89703 .89712 .89730 0.89738 .89747 .89756 .89765 0.89879 142° 0.69800 .89809 .89818 .89827 0.89835 .89844 .89853 .89862 0.89879 .89888 .89897 0.89888 .89897 0.89888 .89897 0.89888	9h 34m 9.95517 .95521 .95526 .95530 9.95534 .95542 .95546 9.95555 .95559 .95563 9.95563 9.95571 9.95571 9.95575 14h 9h 35m 9.95588 .95592 9.95596 .95600 .95604 .95608 9.95613 .95625 9.95629 .95623 .95633	143° 0.90193 .90201 .90210 .90219 0.90227 .90236 .90245 .90253 0.90262 .90271 .90279 .90288 0.90395 0.90314 25m 143° 0.90322 .90331 .90339 .90348 0.90357 .90365 .90374 .90382 0.90390 .90408 .90417 0.90425 .90434 .90442 0.90451	9h 38m 9.95763 .95768 .95776 9.95776 9.95784 .95783 .95796 .95804 .95808 9.95816 9.95820 14h 9h 39m 9.95824 .95836 9.95840 .95848 .95848 .95848 .95848 .95856 9.95860 .95868 9.95868	144° 0.90706 .90714 .90723 .90731 0.90748 .90756 .90765 0.90773 .90792 .90790 .90815 0.90824 21m 144° 0.90832 .90849 .90849 .90849 .90856 .90874 .90882 .90891 0.90899 .909933 .909941 .90949 0.90958	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 40 56 52 48 44 40 36 52 48 40 56 52 48 40 56 56 52 48 40 56 56 57 48 40 56 56 56 57 48 40 40 56 56 56 56 56 56 56 56 56 56 56 56 56

					7	TABLE					[Page 9	15
						Haversi						
	,	9h 40m Log. Hav.	145° Nat. Hav.	9h 44m Log. Hav.	146° Nat. Hav.	9h 48m	147°	9h 52m	148°	9h 56m	149°	
$\frac{s}{0}$	0	9.95884	0.90958	9.96119	0.91452	Log. Hav. 9.96347	Nat. Hav. 0.91934	Log. Hav. 9.96568	Nat. Hav. 0.92402	Log. Hav. 9.96782	Nat. Hav. 0.92858	60
4	1	.95888	.90966	.96123	.91469	.96351	.91941	.96572	.92410	.96786	.92866	56
8	2	.95892	.90974	.96127	.91468	.96355	.91949	.96576	.92418	.96789	.92873	52
12 16	3 4	95896 9.95900	.90983 0.90991	.96131	.91476	.96359	.91957	.96579	.92426	.96793	.92881	48
20	5	.95904	.90999	9.96135	0.91484 .91493	9.96362 .96366	0.91965 .91973	9.96583 .96586	0.92433	$9.96796 \\ .96800$	0.92888 .92896	44
24	6	.95908	.91008	.96142	.91501	.96370	.91981	.96590	.92449	.96803	.92903	36
28	7	.95912	.91016	.96146	.91509	.96374	.91989	.96594	.92456	.96807	.92911	32
32 36	8	$9.95916 \\ .95920$	0.91024 .91033	9.96150 $.96154$	0.91517 .91525	9.96377 $.96381$	0.91997 .92005	9.96597 .96601	0.92464	$9.96810 \\ .96814$	0.92918 .92926	28 24
40	10	.95924	.91041	.96158	.91533	.96385	.92013	.96604	.92479	.96817	.92933	20
44	11	.95928	.91049	.96162	.91541	.96388	.92020	.96608	.92487	.96821	.92941	16
48 52	12 13	9.95932	0.91057 .91066	9.96165	0.91549 .91557	9.96392	0.92028	9.96612	0.92495	9.96824	0.92948	12
56	14	9.95939	0.91074.	96169 9.96173	0.91565	.96396 9.96400	.92036 0.92044	0.96615 0.96619	.92502 0.92510	96827 9.96831	.92955 0.92963	8
00			19m		15m		11m		7m	14h		7
_	,	9h 41m	145°	9h 45m	146°	9h 49m	147°	9h 53m	148°	9h 57m	149°	_
8 0	15	9.95943	0.91082	9.96177	0.91574	9.96403	0.92052	9.96622	0.92518	9.96834	0.92970	8 60
4	16	.95947	.91091	.96181	.91582	.96407	.92060	.96626	.92525	.96837	.92978	56
8	17	.95951	.91099	.96185	.91590	.96411	.92068	.96630	.92533	.96841	.92985	52
12 16	18 19	95955 9.95959	.91107 0.91115	.96188 9.96192	.91598 0.91606	0.96412 0.96418	.92076 0.92083	96633 9.96637	.92541 0.92548	.96845 9.96848	.92993 0.93000	48 44
20	20	.95963	.91124	.96196	.91614	.96422	.92091	.96640	.92556	.96852	.93007	40
24	21	.95967	.91132	.96200	.91622	.96426	.92099	.96644	.92563	.96855	.93015	36
28	22	.95971	.91140	.96204	.91630	.96429	.92107	.96648	.92571	.96859	.93022	32
32 36	23 24	9.95975	0.91149 .91157	9.96208 $.96211$	0.91638 .91646	9.96433	0.92115 .92123	9.96651 $.96655$	0.92579 .92586	9.96862 $.96866$	0.93030 .93037	28 24
40	25	.95983	.91165	.96215	.91654	.96440	.92130	.96658	.92594	.96869	.93045	20
44	26	.95987	.91173	.96219	91662	.96444	.92138	.96662	.92602	.96873	.93052	16
48	27 28	9.95991	0.91182	9.96223	0.91670	9.96448	0.92146	9.96665	0.92609	9.96876	0.93059	12
52 56	29	.95995 9.95999	.91190 0.91198	96227 9.96230	.91678 0.91686	0.96451 0.96455	.92154 0.92162	96669 9.96673	.92617 0.92624	96879 9.96883	.93067 0.93074	8
		14h			14m				<u>' </u>			1
		14,0	1811	1410	14"	1411	10^{m}	14h	6m	14"	2m	
8	,	9h 42m	145°	9h 46m	14 th	9h 50m	147°	9h 54m	6m 148°	9h 58m	149°	s
s 0	30	9h 42m 9.96002	145° 0.91206	9h 46m 9.96234	146° 0.91694	9h 50m 9.96459	147° 0.92170	$\frac{9h\ 54m}{9.96676}$	148° 0.92632	$\frac{9h\ 58m}{9.96886}$	149° 0.93081	s 60
0 4	30 31	9h 42m 9.96002 .96006	145° 0.91206 .91215	9h 46m 9.96234 .96238	146° 0.91694 .91702	9h 50m 9.96459 .96462	147° 0.92170 .92177	9h 54m 9.96676 .96680	148° 0.92632 .92640	9h 58m 9.96886 .96890	149° 0.93081 .93089	60 56
0 4 8	30 31 32	9h 42m 9.96002 .96006 .96010	145° 0.91206 .91215 .91223	9h 46m 9.96234 .96238 .96242	146° 0.91694 .91702 .91710	9h 50m 9.96459 .96462 .96466	147° 0.92170 .92177 .92185	9h 54m 9.96676 .96680 .96683	148° 0.92632 .92640 .92647	9h 58m 9.96886 .96890 .96894	149° 0.93081 .93089 .93096	60 56 52
0 4 8 12 16	30 31 32 33 34	9h 42m 9.96002 .96006 .96010 .96014 9.96018	145° 0.91206 .91215 .91223 .91231 0.91239	9h 46m 9.96234 .96238 .96242 .96246 9.96249	146° 0.91694 .91702 .91710 .91718 0.91726	9h 50m 9.96459 .96462 .96466 .96470 9.96473	147° 0.92170 .92177 .92185 .92193 0.92201	9h 54m 9.96676 .96680 .96683 .96687 9.96690	148° 0.92632 .92640 .92647 .92655 0.92662	9h 58m 9.96886 .96890 .96894 .96897 9.96900	149° 0.93081 .93089 .93096 .93104 0.93111	60 56
0 4 8 12 16 20	30 31 32 33 34 35	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022	145° 0.91206 .91215 .91223 .91231 0.91239 .91247	9h 46m 9.96234 .96238 .96242 .96246 9.96249 .96253	146° 0.91694 .91702 .91710 .91718 0.91726 .91734	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96477	147° 0.92170 .92177 .92185 .92193 0.92201 .92209	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994	148° 0.92632 .92640 .92647 .92655 0.92662 .92670	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904	149° 0.93081 .93089 .93096 .93104 0.93111 .93118	60 56 52 48 44 40
0 4 8 12 16 20 24	30 31 32 33 34 35 36	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256	9h 46m 9.96234 .96238 .96242 .96246 9.96249 .96253 .96257	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742	9ħ 50m 9.96459 .96462 .96466 .96470 9.96473 .96477 .96481	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96907	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126	60 56 52 48 44 40 36
0 4 8 12 16 20	30 31 32 33 34 35	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022	145° 0.91206 .91215 .91223 .91231 0.91239 .91247	9h 46m 9.96234 .96238 .96242 .96246 9.96249 .96253	146° 0.91694 .91702 .91710 .91718 0.91726 .91734	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96477	147° 0.92170 .92177 .92185 .92193 0.92201 .92209	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994	148° 0.92632 .92640 .92647 .92655 0.92662 .92670	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904	149° 0.93081 .93089 .93096 .93104 0.93111 .93118	60 56 52 48 44 40
0 4 8 12 16 20 24 28 32 36	30 31 32 33 34 35 36 37 38	99 42m 9.96002 96006 96010 96014 9.96018 96022 96026 96030 9.96034 96038	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280	9h 46m 9.96234 .96238 .96242 .96246 9.96249 .96253 .96257 .96261 9.96265 .96268	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96477 .96481 .96484 9.96488 .96492	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 .92224 0.92232 .92240	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96694 .96697 .96701 9.96705 .96708	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96907 .96910 9.96914 .96917	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148	60 56 52 48 44 40 36 32 28 24
0 4 8 12 16 20 24 28 32 36 40	30 31 32 33 34 35 36 37 38 39	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026 .96030 9.96034 .96038 .96042	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 0.91264 0.91272 .91280 .91289	9h 46m 9.96234 .96238 .96242 .96246 9.96249 .96253 .96257 .96261 9.96265 .96268 .96272	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96477 .96481 9.96484 9.96488 .96492 .96495	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 0.92224 0.92232 .92240	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96701 9.96705 .96712	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 0.92685 0.92693 .92700 .92708	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96910 9.96914 .96917 .96921	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155	60 56 52 48 44 40 36 32 28 24 20
0 4 8 12 16 20 24 28 32 36 40 44	30 31 32 33 34 35 36 37 38 39 40 41	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96030 9.96034 .96038 .96042 .96046	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96261 9.96265 .96268 .96272 .96276	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782	9h 50m 9.96459 .96462 .96466 .96470 9.96477 .96481 .96484 9.96488 .96492 .96495 .96499	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 .92224 0.92232 .92248 .92248	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96701 9.96705 .96708 .96712 .96715	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92708	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96917 .96917 .96921 .96924	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 44	9.0002 9.0006 9.0006 9.0014 9.96018 9.96022 9.96034 9.96034 9.96046 9.96046 9.96049 9.96053	145° 0.91206 .91215 .91223 .91231 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96280 .96283	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91798	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96484 9.96488 .96492 .96495 .96499 9.96503 .96506	147° 0.92170 .92185 .92185 .92193 0.92201 .92209 .92216 .92224 0.92232 .92240 .92248 .92255 0.92263 .92271	9h 54m 9.96676 .96680 .96683 .96687 .96690 .96994 .96697 .96705 .96708 .96712 .96715 9.96719 .96722	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92718 .92715 0.92723	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96910 9.96914 .96917 .96921 .96928 .96931	149° 0.93081 .93089 .93096 .93104 0.93111 .93126 .93133 0.93140 .93148 .93155 .93162 0.93170	60 56 52 48 44 40 36 32 28 24 20 16 12
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	9.0002 9.0006 9.0006 9.0014 9.0018 9.0022 9.0026 9.0034 9.0034 9.0042 9.0046 9.96049 9.96049 9.96053 9.96057	145° 0.91206 .91215 .91223 .91231 .91247 .91256 .91264 .91272 .91280 .91289 .91297 0.91305 .91313 0.91321	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96280 .96283 9.96283	146° 0.91694 .91702 .91710 0.91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91790 .91790	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96477 .96481 .96488 .96492 .96495 .96499 9.96503 .96506 9.96510	147° 0.92170 .92185 .92185 0.92201 .92209 .92216 0.92232 .92240 .92248 .92255 0.92263 .92271	9h 54m 9.96676 .96680 .96683 .96687 .96690 .96994 .96697 .96705 .96712 .96715 .96719 .96722 9.96726	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92718 .92715 0.92731	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96910 9.96914 .96917 .96921 .96924 .96931 9.96934	149° 0.93081 .93089 .93096 .93096 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93170 .93177	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 44	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026 .96030 9.96034 .96038 .96042 .96049 .96053 9.96057 14h	145° 0.91206 .91215 .91223 .91231 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321	9h 46m 9.96234 .96238 .96246 9.96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96280 .96233 9.96287 14h	146° 0.91694 .91702 .91710 0.91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91790 .91790 .91806	9h 50m 9.96459 .96462 .96460 9.96473 .96477 .96481 .96488 .96492 .96495 .96499 9.96503 .96506 9.96510 	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92214 0.92232 .92240 .92248 .92255 0.92263 .92271 0.92279	9h 54m 9.96676 .96680 .96680 .96687 9.96690 .96994 .96697 .96705 .96705 .96712 .96715 .96719 .96722 9.96726 .14h	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92715 0.92723 .92731 0.92738	9.6886 9.96886 9.6890 9.6897 9.96900 9.6904 9.96914 9.96914 9.96917 9.96924 9.96928 9.96934 14.46	149° 0.93081 .93089 .93096 0.93104 0.93111 .93126 .93133 0.93140 .93148 .93155 .93162 0.93170 0.93184	60 56 52 48 44 40 36 32 28 24 20 16 12
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44	9h 42m 9.96002 .96006 .96010 9.6014 9.96018 .96022 .96026 .96034 .96034 .96042 .96046 9.96049 .96053 9.96057 14h 9h 43m	145° 0.91206 .91215 .91223 .91231 .91247 .91256 .91264 .91262 .91280 .91289 .91297 0.91305 .91313 0.91321	9h 46m 9.96234 .96238 .96249 .96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96280 .96283 9.96287 .9647m	146° 0.91694 .91702 .91710 0.91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91790 .91806 13m	9h 50m 9.96459 .96462 .96466 .96470 .96473 .96477 .96481 .96488 .96492 .96495 .96499 .96503 .96506 9.96510 	147° 0.92170 .92177 .92185 .92193 0.92201 .92299 .92216 .92232 .92240 .92248 .92255 0.92263 .92271 0.92279	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96708 .96712 .96715 9.96719 .96722 9.96726 .14h 9h 55m	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92708 .92715 0.92723 .92731 0.92738	9h 58m 9.96886 .96890 .96897 9.96900 .96904 .96910 9.96914 .96917 .96921 .96928 .96931 9.96934 14h 9h 59m	149° 0.93081 .93089 .93096 .93104 0.93111 .93126 .93133 0.93140 .93148 .93155 .93162 0.93170 .93177 0.93184 1m	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44	9h 42m 9.96002 .96006 .96010 9.96014 9.96018 .96022 .96030 9.96034 .96038 .96042 .96046 9.96049 .96053 9.96057 14h 9h 43m 9.96061	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 17m 145° 0.91329	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96283 9.96283 9.96287 14h 9h 47m 9.96291	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91758 .91766 .91774 .91782 0.91798 0.91806 13m 146° 0.91814	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96488 .96492 .96495 .96499 9.96506 9.96506 9.96510 14h 9h 51m 9.96514	147° 0.92170 .92177 .92185 .92193 0.92201 .9229 .92240 .92242 0.92232 .92240 .92248 .92255 0.92263 .92271 0.92279	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96712 .96712 .96712 .96712 .96722 9.96726 .14h 9h 55m 9.96729	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92723 0.92738 0.92738	9h 58m 9.96886 .96890 .96894 .96897 9.96904 .96907 .96914 .96917 .96921 .96924 9.96928 .96931 9.96934 	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 /m 149° 0.93192	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96036 .96034 .96038 .96042 .96049 .96053 9.96057 14h 9.96061 .96065	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 177m 145° 0.91329 .91338	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96280 .96283 9.96287 14h 9h 47m 9.96291 .96295	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91750 0.91758 .91766 .91774 .91782 0.91896 13m 146° 0.91814 .91822	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96484 9.96482 .96495 .96499 9.96503 .96506 9.96510 14h 9h 51m 9.96514 .96517	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 .92224 0.92232 .92240 .92248 .92255 0.92263 .92271 0.92279	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96705 .96712 .96712 .96712 .96722 9.96726 .946729 .96733	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92715 0.92723 0.92731 0.92738 .92731 0.92738 0.92746 .92753	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96914 .96917 .96921 .96924 9.96928 .96934 14h 9h 59m 9.96938 .96941	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93170 .93184 .7m 149° 0.93192 .93199	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 44 47 48	9,6002 9,6006 96010 96014 9,6018 9,6022 96026 96030 9,96034 96049 9,96049 9,96049 9,96057 14h 9,96061 9,96061 9,96069 9,96073	145° 0.91206 .91215 .91223 .91231 .91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91313 0.91321 177m 145° 0.91329 .91338 .91346 .91354	9h 46m 9.96234 .96238 .96249 .96246 9.96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96280 .96283 9.96287 .14h 9h 47m 9.96291 .96299 .96302	146° 0.91694 .91702 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91806 13m 146° 0.91814 .91822 .91830 .91838	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96477 .96481 9.96488 .96492 .96495 .96503 .96506 9.96510 14h 9h 51m 9.96514 .96517 .96521 .96521 .96525	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 0.92232 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92236 .92294 .92302 .92310	9h 54m 9.96676 .96680 .96687 9.96680 .96687 9.96690 .96994 .96697 .96705 .96705 .96712 .96712 .96712 .96722 9.96726 .14h 9h 55m 9.96733 .96736 .96736	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92718 .92713 0.92723 .92731 0.92738 .5m 148° 0.92746 .92753 .92761	9h 58m 9.96886 .96890 .96897 9.96900 .96904 .96910 9.96914 .96917 .96924 9.96928 .96931 9.96934 14h 9h 59m 9.96941 .96945 .96945 .96948	149° 0.93081 .93089 .93096 .93096 0.93104 0.93118 .93126 .93133 0.93140 .93148 .93155 .93162 .93177 0.93184 149° 0.93192 .93199 .93296	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 44 45 46 47 48 49	9,42m 9,96002 96006 96010 9,96014 9,96018 96022 96030 9,96034 96049 96049 96053 9,96057 14h 9,96061 9,96065 9,96073 9,96073 9,96077	145° 0.91206 .91215 .91223 .91231 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 17m 145° 0.91329 .91338 .91346 .91354 0.91354	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96261 9.96265 .96268 .96272 .96276 9.96283 9.96287 14h 9h 47m 9.96291 .96293 9.96302 9.96306	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91798 0.91896 13m 146° 0.91814 .91822 .91838 0.91838	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96492 .96495 .96495 .96506 9.96506 9.96510 14h 9h 51m 9.96525 9.96525 9.96525	147° 0.92170 .92177 .92185 .92193 0.92201 .9229 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .92294 .92302 .92310 0.92317	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96712 .96715 9.96719 .96722 9.96726 14h 9h 55m 9.96736 .96736 .96736 .96740 9.96740	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92700 .92708 .92715 0.92723 .92731 0.92738 25m 148° 0.92746 .92753 .92768 .92768	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96914 .96917 .96921 .96928 .96931 9.96934 14h 9h 59m 9.96948 .96945 .96948 .96948 .96948 .96948	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 1#9° 0.93192 .93199 .93206 .93214 0.93221	60 56 52 48 44 40 36 32 28 24 20 16 12 8 60 56 52 48 44
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 45 46 47 48 49 50	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026 .96034 .96034 .96042 .96049 .96053 9.96053 9.96057 14h 9.96065 .96069 .96077 .96081	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 177m 145° 0.91329 .91388 .91346 .91354 0.91354 0.91362 .91370	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96265 .96268 .96272 .96276 9.96283 9.96287 14h 9h 47m 9.96291 .96295 .96290 .96302 9.96302 9.96306 .96310	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91758 .91766 .91774 .91782 0.91798 0.91896 13m 146° 0.91814 .91822 .91830 .91838 0.91846 .91854	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96492 .96495 .96495 .96506 9.96506 9.96510 14h 9h 51m 9.96521 .96525 9.96528 9.96532	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 .92224 0.92232 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .92294 .92302 .92310 0.92317 .92325	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96708 .96712 .96712 .96712 .96722 9.96726 .14h 9h 55m 9.96733 .96736 .96740 9.96743	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92708 .92715 0.92738 .92731 0.92738 .92731 0.92736 0.92746 .92753 .92768 0.92776 .92768	9h 58m 9.96886 .96890 .96894 .96897 9.96900 9.96914 .96917 .96921 .96924 9.96928 .96931 9.96938 .96941 .96945 .96948 9.96955	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 .93192 .93199 .93206 .93214 0.93221 .93228	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 44 45 46 47 48 49	9,42m 9,96002 96006 96010 9,96014 9,96018 96022 96030 9,96034 96049 96049 96053 9,96057 14h 9,96061 9,96065 9,96073 9,96073 9,96077	145° 0.91206 .91215 .91223 .91231 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 17m 145° 0.91329 .91338 .91346 .91354 0.91354	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96261 9.96265 .96268 .96272 .96276 9.96283 9.96287 14h 9h 47m 9.96291 .96293 9.96302 9.96306	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91798 0.91896 13m 146° 0.91814 .91822 .91838 0.91838	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96492 .96495 .96495 .96506 9.96506 9.96510 14h 9h 51m 9.96525 9.96525 9.96525	147° 0.92170 .92177 .92185 .92193 0.92201 .9229 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .92294 .92302 .92310 0.92317	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96712 .96715 9.96719 .96722 9.96726 14h 9h 55m 9.96736 .96736 .96736 .96740 9.96740	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92693 .92700 .92718 .92731 0.92733 .92731 0.92738 .92766 .92753 .92768 0.92776 .92783 .92761 .92783	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96914 .96917 .96921 .96928 .96931 9.96934 14h 9h 59m 9.96948 .96945 .96948 .96948 .96948 .96948	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 1#9° 0.93192 .93199 .93206 .93214 0.93221	60 56 52 48 44 40 36 32 28 24 20 16 12 8 60 56 52 48 44
0 4 8 12 16 20 22 36 40 44 48 52 56 8 0 4 8 12 16 20 22 8 8 8 8 2 8 8 8 8 8 8 8 8 8 8 8 8	30 31 32 33 34 35 36 37 38 39 41 42 44 44 45 50 51 52 53	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026 .96034 .96038 .96042 .96049 .96053 9.96057 .14h 9h 43m 9.96065 .96069 .96073 9.96073 9.96077 .96081 .96088 9.96092	145° 0.91206 .91215 .91223 .91231 .91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91305 .91313 0.91321 17m 145° 0.91329 .91338 .91346 .91354 0.91362 .91370 .91387 0.91387	9h 46m 9.96234 .96238 .96249 .96249 .96257 .96265 .96268 .96272 .96276 9.96280 .96283 9.96287 14h 9h 47m 9.96291 .96295 .96299 .96302 9.96302 9.96314 .96317 9.96321	146° 0.91694 .91702 .91710 0.91718 0.91726 .91734 .91742 .91750 0.91778 .91766 .91774 .91806 13m 146° 0.91814 .91822 .91838 0.91846 .91854 .91854 .91854 .91870 0.91878	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96484 9.96488 .96492 .96495 .96503 .96506 9.96510 	147° 0.92170 .92177 .92185 .92193 0.92201 .92299 .92216 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .9233 .92310 0.92317 .92325 .92333 .92331 0.92348	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96712 .96712 .96712 .96722 9.96726 .14h 9h 55m 9.96733 .96736 .96740 9.96743 .96747 .96750 .96754 9.96754	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92708 .92715 0.92731 0.92733 0.92733 0.92736 0.92733 0.92736 0.92736 0.92738 0.92736 0.92736 0.92736 0.92736 0.92780 0.92780 0.92780 0.92780	9h 58m 9.96886 .96890 .96894 .96897 9.96900 .96904 .96917 .96911 .96921 .96928 .96931 9.96934	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93170 .93177 0.93184 149° 149° 0.93192 .93199 .93206 .93214 0.93221 .93228 .93236 .93243 0.93250	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 8 6 60 56 52 48 44 40 6 56 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
0 4 8 12 16 20 24 28 36 40 44 48 52 56 8 9 16 20 24 28 28 28 28 28 28 28 28 28 28 28 28 28	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 49 50 51 52 53 53 54	9,6002 9,6006 9,6010 9,6014 9,96018 9,9602 9,96034 9,96034 9,96049 9,96053 9,96053 9,96057 14h 9,96065 9,96069 9,96073 9,96073 9,96081 9,96082 9,96082 9,96092 9,96092 9,96092	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91397 0.91305 .91313 0.91321 17m 145° 0.91329 .91338 .91346 0.91354 0.91354 0.91359 .91379 .91379 .91387 .91379 .91387	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96261 9.96265 .96283 .96272 .96276 9.96283 9.96287 14h 9h 47m 9.96291 .96293 .96290 .96302 9.96306 .96310 .96314 .96325	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91758 .91766 .91774 .91782 0.91798 0.91896 13m 146° 0.91814 .91822 .91830 0.91838 0.91846 .91854 .91862 .91878 .91886	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96488 .96492 .96495 .96506 9.96506 9.96510 14h 96517 .96525 9.96528 .96532 .96536 .96539 9.96543 .96547	147° 0.92170 .92177 .92185 .92193 0.92201 .92299 .92240 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .9294 .92302 .92302 .92303 .92317 .92333 .92331 0.92317	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .9697 .96705 .96712 .96715 9.96712 .96715 9.96722 9.96726 .14h 9.96733 .96736 .96740 9.96740 9.96740 9.96758 .96754 9.96758 .98761	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92700 .92708 .92715 0.92723 0.92738 0.92738 0.92738 0.92746 .92753 .92768 0.92768 0.92776 .92768 0.92776 .92783 .92791 0.92798	9h 58m 9.96886 .96890 .96894 .96897 9.96904 .96907 .96914 .96917 .96921 .96924 9.96928 9.96931 9.96934	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93148 .93155 .93162 0.93177 0.93184 1#* 149° 0.93192 .93199 .93206 .93214 0.93221 .93228 .93236 .93243 0.93250 .93258	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 8 4 40 56 52 48 44 40 56 52 48 40 56 56 56 56 56 56 56 56 56 56 56 56 56
0 4 8 12 16 20 24 28 32 36 40 44 44 48 52 56 20 4 21 20 24 28 32 36 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 40 41 42 44 44 44 45 50 51 52 53 54 55	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026 .96030 9.96034 .96042 .96042 .96049 .96053 9.96057 14h 9.96065 .96069 .96073 9.96077 .96081 .96088 9.96082 .96092 .96096 .96100	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91397 0.91305 .91313 0.91321 177m 145° 0.91329 .91384 .91346 .91354 0.91362 .91379 .91387 0.91389 .91387 0.91395 .91403 .91411	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96261 9.96268 .96272 .96276 9.96280 .96283 9.96287 14h 9.96291 .96292 9.96306 .96310 .96314 .96317 9.96321 .96325 .96329	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91782 0.91896 13m 146° 0.91814 .91822 .91830 .91838 0.91846 .91854 .91852 .91870 0.91878	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96492 .96495 .96495 .96506 .96506 .96510 .96521 .96525 9.96528 .96525 9.96532 .96536 .96539 9.96547 .96547 .96547 .96550	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 .92224 0.92232 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .9232 .92310 0.92317 .92325 .92333 .92311 0.92348	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96712 .96715 9.96712 .96712 .96722 9.96726 .14h 9.96729 .96733 .96736 .96740 9.96743 9.96750 .96750 .96758 .98761 .96758	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92685 0.92731 0.92733 0.92731 0.92738 0.92746 .92753 .92761 .92768 0.92776 .92768 0.92776 0.92783 .92791 .92798	9h 58m 9.96886 .96890 .96894 .96897 9.96900 9.96914 .96917 9.96921 9.96924 9.96928 9.96934 14h 9.96948 9.96948 9.96955 .96958 9.96965 9.96968 9.96972	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 .93192 .93199 .93296 .93214 0.93221 .93228 .93236 .93243 0.93258 .93265	60 56 52 48 44 40 36 32 28 24 20 8 4 112 8 4 16 112 8 4 4 16 56 56 52 48 44 40 40 56 56 52 48 48 49 40 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 22 36 40 44 48 52 56 8 12 16 20 24 8 8 12 16 20 28 8 8 28 8 28 8 28 8 28 8 26 8 26	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 49 50 51 52 53 53 54	9,6002 9,6006 9,6010 9,6014 9,96018 9,9602 9,96034 9,96034 9,96049 9,96053 9,96053 9,96057 14h 9,96065 9,96069 9,96073 9,96073 9,96081 9,96082 9,96082 9,96092 9,96092 9,96092	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91397 0.91305 .91313 0.91321 17m 145° 0.91329 .91338 .91346 0.91354 0.91354 0.91359 .91379 .91379 .91387 .91379 .91387	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96261 9.96265 .96283 .96272 .96276 9.96283 9.96287 14h 9h 47m 9.96291 .96293 .96290 .96302 9.96306 .96310 .96314 .96325	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91758 .91766 .91774 .91782 0.91798 0.91896 13m 146° 0.91814 .91822 .91830 0.91838 0.91846 .91854 .91862 .91878 .91886	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96488 .96492 .96495 .96506 9.96506 9.96510 14h 96517 .96525 9.96528 .96532 .96536 .96539 9.96543 .96547	147° 0.92170 .92177 .92185 .92193 0.92201 .92299 .92240 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .9294 .92302 .92302 .92303 .92317 .92333 .92331 0.92317	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .9697 .96705 .96712 .96715 9.96712 .96715 9.96722 9.96726 .14h 9.96733 .96736 .96740 9.96740 9.96740 9.96758 .96754 9.96758 .98761	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92700 .92708 .92715 0.92723 0.92738 0.92738 0.92738 0.92746 .92753 .92768 0.92768 0.92776 .92768 0.92776 .92783 .92791 0.92798	9h 58m 9.96886 .96890 .96894 .96897 9.96904 .96907 .96914 .96917 .96921 .96924 9.96928 9.96931 9.96934	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 1m 149° 0.93192 .93199 .93296 .93214 0.93221 .93228 .93265 .93243 0.93250 .93258 .93265 .93272 0.93279	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 8 4 40 56 52 48 44 40 56 52 48 40 56 56 56 56 56 56 56 56 56 56 56 56 56
0 4 8 12 16 20 22 36 40 44 48 52 56 8 12 16 20 24 8 8 12 16 20 24 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	30 31 32 33 34 35 36 37 38 39 40 41 44 44 44 45 50 51 55 55 57 58	9,6002 9,6006 9,6010 9,6014 9,96018 9,9602 9,96034 9,96034 9,96049 9,96053 9,96057 14h 9,96065 9,96065 9,96073 9,96073 9,96073 9,96084 9,96088 9,96088 9,96092 9,96100 9,96104 9,96108 9,96108 9,96108 9,96108	145° 0.91206 .91215 .91223 .91231 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 17m 145° 0.91329 .91388 .91346 0.91354 0.91354 0.91359 .91379 .91379 .91389 .91411 .91419 0.91427 .91436	9h 46m 9.96234 .96238 .96249 .96249 .96257 .96261 9.96265 .96268 .96272 .96276 9.96280 .96283 9.96287 14h 9h 47m 9.96291 .96290 .96314 .96317 9.96317 9.96317 9.96321 .96325 .96329 .96332 9.96336 .96310	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91750 0.91758 .91766 .91774 .91892 0.91798 0.91896 13m 146° 0.91814 .91822 .91830 0.91838 0.91846 .91854 .91854 .91862 .91870 0.91878 .91894 .91902 0.91910 .91918	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96492 .96495 .96499 9.96506 9.96510 14h 9h 51m 9.96514 .96525 9.96528 .96532 .96536 .96539 9.96543 .965547 .96554 9.965547 .96556	147° 0.92170 .92177 .92185 .92193 0.92201 .92299 .92240 .92248 .92255 0.92263 .92271 0.92279 7m 147° 0.92286 .92310 0.92317 .92302 .92310 0.92317 .92333 .92331 0.92317 .92356 .92364 .92379 .92379	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .9697 .96705 .96712 .96715 9.96712 .96715 9.96722 9.96726 .14h 9.96733 .96736 .96740 9.96740 9.96740 9.96758 .96755 .96758 9.96758 .98761 .96765 .96768 9.96772 .96775	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92708 .92715 0.92733 0.92731 0.92738 25m 148° 0.92746 .92753 .92768 0.92768 0.92768 0.92768 0.92783 .92791 .92828 0.92836 .92838	9h 58m 9.96886 .96890 .96894 .96897 9.96900 9.96914 .96917 .96921 9.96928 9.96931 9.96934	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 1#8 149° 0.93192 .93199 .93296 .93214 0.93221 .93228 .93236 .93236 .93236 .93250 .93258 .93265 .93272 0.93279 .93287	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 40 56 56 52 48 44 40 56 56 56 56 52 48 40 40 56 40 56 40 56 40 56 40 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 24 28 32 36 44 44 48 52 56 8 12 16 20 4 28 32 32 36 40 44 44 48 48 48 49 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 39 40 41 41 44 44 44 45 55 55 55 55 56 57 58 59 59 59 59 59 59 59 59 59 59 59 59 59	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026 .96030 9.96034 .96038 .96042 .96049 .96053 9.96053 9.96057 14h 9.96065 .96069 .96077 .96081 .96088 .96082 .96092 .96096 .96100 .96104 9.96108 .96112 .96115	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 17m 145° 0.91329 .91388 .91346 .91354 0.91362 .91370 .91379 .91387 0.91395 .91411 .91419 0.91427	9h 46m 9.96234 .96238 .96242 .96249 .96253 .96257 .96265 .96268 .96272 .96276 .96280 .96283 .9.96287 14h 9h 47m 9.96291 .96306 .96310 .96314 .96317 .96325 .96329 .96336 .96330 .96334 .96344	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91758 .91766 .91774 .91782 0.91798 0.91896 13m 146° 0.91814 .91822 .91830 .91838 0.91846 .91854 .91862 .91870 0.91878 .91878 .91886 .91894 .91902 0.91910 .91918	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96492 .96495 .96495 .96506 9.96501 14h 9h 51m 9.96514 .96528 .96532 .96532 .96536 .96539 9.96543 .96554 9.96557 .96551 .96555	147° 0.92170 .92177 .92185 .92193 0.92201 .92209 .92216 .92224 0.92232 .92240 .92248 .92255 0.92263 .92271 0.92279 9m 147° 0.92286 .9232 .92310 0.92317 .92325 .92333 .92311 0.92348 .92356 .92372 0.92379	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96712 .96712 .96712 .96722 9.96726 .14h 9.96733 .96736 .96740 9.96743 .96754 9.96758 9.96758 9.96758 9.96758 9.96765 .96765 .96765 .967672 .96775 .96779	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92685 0.92685 0.92731 0.92738 0.92731 0.92738 0.92736 0.92746 .92753 .92768 0.92768 0.92768 0.92768 0.92806 .92898 0.92898 0.92898	9h 58m 9.96886 .96890 .96894 .96897 9.96900 9.96914 .96917 .96921 9.96924 9.96928 9.96931 9.96934	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93148 .93155 .93162 0.93177 0.93184 /m 149° 0.93192 .93199 .93296 .93214 0.93221 .93228 .93236 .93243 0.93250 .93279 0.93294	60 56 52 48 44 40 36 32 28 24 20 48 44 40 36 36 32 28 48 44 40 36 36 36 32 48 44 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 22 36 40 44 48 52 56 8 12 16 20 24 8 8 12 16 20 24 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	30 31 32 33 34 35 36 37 38 39 40 41 44 44 44 45 50 51 55 55 57 58	9h 42m 9.96002 .96006 .96010 .96014 9.96018 .96022 .96026 .96030 9.96034 .96038 .96042 .96049 .96053 9.96053 9.96057 .14h 9.96065 .96069 .96077 .96081 .96084 .96088 9.96092 .96096 .96100 .96104 9.96108 .96112 .96115 9.96119	145° 0.91206 .91215 .91223 .91231 0.91239 .91247 .91256 .91264 0.91272 .91280 .91289 .91297 0.91305 .91313 0.91321 17m 145° 0.91329 .91388 .91346 .91354 0.91362 .91370 .91379 .91387 0.91395 .91411 .91419 0.91427	9h 46m 9.96234 .96238 .96249 .96249 .96257 .96261 9.96265 .96268 .96272 .96276 9.96280 .96283 9.96287 14h 9h 47m 9.96291 .96290 .96314 .96317 9.96317 9.96317 9.96321 .96325 .96329 .96332 9.96336 .96310	146° 0.91694 .91702 .91710 .91718 0.91726 .91734 .91742 .91758 .91766 .91774 .91782 0.91798 0.91896 13m 146° 0.91814 .91822 .91830 .91838 0.91846 .91854 .91862 .91870 0.91878 .91886 .91894 .91902 0.91910 .91918 .91926 0.91934	9h 50m 9.96459 .96462 .96466 .96470 9.96473 .96481 .96488 9.96492 .96495 .96495 .96506 9.96501 14h 9h 51m 9.96514 .96528 .96532 .96532 .96536 .96539 9.96543 .96554 9.96557 .96556 .96555 9.96556 9.96565 9.96565	147° 0.92170 .92177 .92185 .92193 0.92201 .92299 .92240 .92248 .92255 0.92263 .92271 0.92279 7m 147° 0.92286 .92310 0.92317 .92302 .92310 0.92317 .92333 .92331 0.92317 .92356 .92364 .92379 .92379	9h 54m 9.96676 .96680 .96683 .96687 9.96690 .96994 .96697 .96705 .96712 .96712 .96712 .96722 9.96726 .14h 9.96729 .96733 .96736 .96740 9.96743 .96754 9.96758 9.96758 9.96758 9.96758 9.96768 9.96772 .96775 .96779 9.96782	148° 0.92632 .92640 .92647 .92655 0.92662 .92670 .92678 .92708 .92715 0.92733 0.92731 0.92738 25m 148° 0.92746 .92753 .92768 0.92768 0.92768 0.92768 0.92783 .92791 .92828 0.92836 .92838	9h 58m 9.96886 .96890 .96894 .96897 9.96900 9.96914 .96917 .96921 9.96924 9.96928 9.96931 9.96934	149° 0.93081 .93089 .93096 .93104 0.93111 .93118 .93126 .93133 0.93140 .93148 .93155 .93162 0.93177 0.93184 1#8 149° 0.93192 .93199 .93296 .93214 0.93221 .93228 .93236 .93236 .93236 .93250 .93258 .93265 .93272 0.93279 .93287	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 40 56 56 52 48 44 40 56 56 56 56 52 48 40 40 56 40 56 40 56 40 56 40 40 40 40 40 40 40 40 40 40 40 40 40

TABLE 45.

		407.00	4700	ach im	4-40	4 C F Om	4500	40 h 4 2m	4500	103 100	4740	
		10h 0m	150°	10h 4m	151°	10h 8m	152°	10h 12m		10h 16m		
s	-0		Nat. Hav.	Log. Hav.	Nat. Hav. 0.93731	Log. Hav.	Nat. Hav.	Log. Hav.		Log. Hav.	Nat. Hav.	S
0	0	9.96989	0.93301	9.97188	.93738	9.97381	0.94147	9.97566	0.94550 .95557	9.97745	0.94940	60
4	1 2	.96992	.93309	.97192 .97195	.93745	.97384	.94154 .94161	.97569 $.97572$.94564	.97748 .97751	.94946 .94952	56 52
8 12	3	.96996	.93323	.97198	.93752	.97387 .9739 0	.94168	.97575	.94570			
$\frac{12}{16}$	4	9.97002	0.93330	9.97201	0.93759	9.97393	0.94175	9.97578	0.94577	97754 9.97756	.94959 0.94965	48
20	5	.97002	.93338	.97201	.93766	.97397	.94181	.97581	.94583	.97759	.94972	44 40
24	6	.97009	.93345	.97208	.93773	.97400	.94188	.97584	.94590	.97762	.94978	36
28	7	.97012	.93352	.97211	.93780	.97403	.94195	.97587	.94596	.97765	.94984	32
32	8	9.97016	0.93359	9.97214	0.93787	9.97406	0.94202	9.97591	0.94603	9.97768	0.94991	28
36	9	.97019	.93367	.97218	.93794	.97409	.94209	.97594	.94610	.97771	.94997	24
40	10	.97022	.93374	.97221	.93801	.97412	.94215	.97597	.94616	.97774	.95003	20
44	11	.97026	.93381	.97224	.93808	.97415	.94222	.97600	.94623	.97777	.95010	16
48	12	9.97029	0.93388	9.97227	0.93815	9.97418	0.94229	9.97603	0.94629	9.97780	0.95016	12
52	13	.97033	.93395	.97231	.93822	.97422	.94236	.97606	.94636	.97783	.95022	8
56	14	9.97036	0.93403	9.97234	0.93829	9.97425	0.94243	9.97609	0.94642	9.97785	0.95029	4
		1.3h	59m	1.3h	55m	1.3h	51m	1.3h	47m	13h	4.3m	
_		10h 1m	150°	10h 5m	151°	10h 9m	152°	10h 13m		10h 17n		-
s 0	15	9.97039	0.93410	$\frac{10.03.0}{9.97237}$	0.93836	9.97428	0.94249	9.97612	0.94649	9.97788	0.95035	8 60
4	16	.97043	.93417	.97240	.93843	.97431	.94256	.97615	.94655	.97791	.95041	56
8	17	.97043	.93424	.97244	.93850	.97434	.94263	.97618	.94662	.97794	.95041	52
12	18	.97049	.93432	.97244	.93857	.97434	.94270	.97621	.94669	.97797	.95054	48
16	19	9.97052	0.93439	9.97250	0.93864	9.97440	0.94276	9.97624	0.94675	9.97800	0.95060	44
20	20	.97056	.93446	.97253	.93871	.97443	.94283	.97627	.94682	.97803	.95066	40
24	21	.97059	.93453	.97257	.93878	.97447	.94290	.97630	.94688	.97806	.95073	36
28	22	.97063	.93460	.97260	.93885	.97450	.94297	.97633	.94695	.97808	.95079	32
32	23	9.97066	0.93468	9.97263	0.93892	9.97453	0.94303	9.97636	0.94701	9.97811	0.95085	28
36	24	.97069	.93475	.97266	.93899	.97456	.94310	.97639	.94708	.97814	.95092	24
40	25	.97073	.93482	.97269	.93906	.97459	.94317	.97642	.94714	.97817	.95098	20
44	26	.97076	.93489	.97273	.93913	.97462	.94324	.97645	.94721	.97820	.95104	16
48	27	9.97079	0.93496	9.97276	0.93920	9.97465	0.94330	9.97647	0.94727	9.97823	0.95111	12
52	28	.97083	.93503	.97279	.93927	.97468	.94337	.97650	.94734	.97826	.95117	8
56	29	9.97086	0.93511	9.97282	0.93934	9.97471	0.94344	9.97653	0.94740	9.97829	0.95123	4
		13h	58m	13h	54m	13h	50m	13h	46m	13h	42m	1
9												
S	,	10h 2m	150°	10h 6m	151°	10h 10n	n 152°	10h 14m	153°	10h 18n	n 154°	9
s 0	30	$\frac{10^{h} 2^{m}}{9.97089}$	150° 0.93518	$\frac{10h \ 6m}{9.97285}$	151° 0.93941	10h 10h 9.97474	n 152° 0.94351	$\frac{10^{h} 14^{n}}{9.97656}$	153° 0.94747	10h 18h 9.97831	n 154° 0.95129	s 60
0 4	$\frac{30}{31}$		0.93518 .93525	9.97285 .97289	0.93941 .93948		0.94351 .94357	1				
0 4 8	30 31 32	9.97089 .97093 .97096	0.93518 .93525 .93532	9.97285 .97289 .97292	0.93941 .93948 .93955	9.97474 .97478 .97481	0.94351 .94357 .94364	9.97656 .97659 .97662	0.94747 .94753 .94760	9.97831 .97834 .97837	0.95129 .95136 .95142	60 56 52
0 4 8 12	30 31 32 33	9.97089 .97093 .97096 .97099	0.93518 .93525 .93532 .93539	9.97285 .97289 .97292 .97295	0.93941 .93948 .93955 .93962	9.97474 .97478 .97481 .97484	0.94351 .94357 .94364 .94371	9.97656 .97659 .97662 .97665	0.94747 .94753 .94760 .94766	9.97831 .97834 .97837 .97840	0.95129 .95136 .95142 .95148	60 56 52 48
0 4 8 12 16	30 31 32 33 34	9.97089 .97093 .97096 .97099 9.97103	0.93518 .93525 .93532 .93539 0.93546	9.97285 .97289 .97292 .97295 9.97298	0.93941 .93948 .93955 .93962 0.93969	9.97474 .97478 .97481 .97484 9.97487	0.94351 .94357 .94364 .94371 0.94377	9.97656 .97659 .97662 .97665 9.97668	0.94747 .94753 .94760 .94766 0.94773	9.97831 .97834 .97837 .97840 9.97843	0.95129 .95136 .95142 .95148 0.95154	60 56 52 48 44
0 4 8 12 16 20	30 31 32 33 34 35	9.97089 .97093 .97096 .97099 9.97103 .97106	0.93518 .93525 .93532 .93539 0.93546 .93554	9.97285 .97289 .97292 .97295 9.97298 .97301	0.93941 .93948 .93955 .93962 0.93969 .93976	9.97474 .97478 .97481 .97484 9.97487 .97490	0.94351 .94357 .94364 .94371 0.94377 .94384	9.97656 .97659 .97662 .97665 9.97668 .97671	0.94747 .94753 .94760 .94766 0.94773 .94779	9.97831 .97834 .97837 .97840 9.97843 .97846	0.95129 .95136 .95142 .95148 0.95154 .95161	60 56 52 48 44 40
0 4 8 12 16 20 24	30 31 32 33 34 35 36	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305	0.93941 .93948 .93955 .93962 0.93969 .93976 .93982	9.97474 .97478 .97481 .97484 9.97487 .97490 .97493	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674	0.94747 .94753 .94760 .94766 0.94773 .94779	9.97831 .97834 .97837 .97840 9.97843 .97846 .97849	0.95129 .95136 .95142 .95148 0.95154 .95161	60 56 52 48 44 40 36
0 4 8 12 16 20 24 28	30 31 32 33 34 35 36 37	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109 .97113	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308	0.93941 .93948 .93955 .93962 0.93969 · .93976 .93982 .93989	9.97474 .97478 .97481 .97484 9.97487 .97490 .97493 .97496	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674 .97677	0.94747 .94753 .94760 .94766 0.94773 .94779 .94786 .94792	9.97831 .97834 .97837 .97840 9.97843 .97846 .97849 .97851	0.95129 .95136 .95142 .95148 0.95154 .95161 .95167 .95173	60 56 52 48 44 40 36 32
0 4 8 12 16 20 24 28 32	30 31 32 33 34 35 36 37 38	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109 .97113	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561 .93568 0.93575	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311	0.93941 .93948 .93955 .93962 0.93969 .93976 .93982 .93989 0.93996	9.97474 .97478 .97481 .97484 9.97487 .97490 .97493 .97496 9.97499	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94404	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674 .97677 9.97680	0.94747 .94753 .94760 .94766 0.94773 .94779 .94786 .94792 0.94799	9.97831 .97834 .97837 .97840 9.97843 .97846 .97849 .97851 9.97854	0.95129 .95136 .95142 .95148 0.95154 .95161 .95167 .95173 0.95179	60 56 52 48 44 40 36 32 28
0 4 8 12 16 20 24 28 32 36	30 31 32 33 34 35 36 37 38	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109 .97113 9.97116 .97119	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561 .93568 0.93575	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314	0.93941 .93948 .93955 .93962 0.93969 .93976 .93982 .93989 0.93996	9.97474 .97478 .97481 .97484 9.97487 .97490 .97493 .97496 9.97499 .97502	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94404	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674 .97677 9.97680 .97683	0.94747 .94753 .94760 .94766 0.94773 .94779 .94786 .94792 0.94799	9.97831 .97834 .97837 .97840 9.97843 .97846 .97849 .97851 9.97854 .97857	0.95129 .95136 .95142 .95148 0.95154 .95161 .95167 .95173 0.95179	60 56 52 48 44 40 36 32 28 24
0 4 8 12 16 20 24 28 32 36 40	30 31 32 33 34 35 36 37 38 39	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109 .97113 9.97116 .97119 .97123	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561 .93568 0.93575 .93582	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317	0.93941 .93948 .93955 .93962 0.93969 *.93976 .93982 .93989 0.93996 .94003	9.97474 .97478 .97481 .97484 9.97487 .97490 .97493 .97496 9.97499 .97502 .97505	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 0.94397 0.94404 .94411 .94418	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674 .97677 9.97680 .97683 .97686	0.94747 .94753 .94760 .94766 0.94779 .94779 .94792 0.94799 .94805 .94811	9.97831 .97834 .97837 .97840 9.97843 .97846 .97849 9.97851 9.97854 .97857 .97860	0.95129 .95136 .95142 .95148 0.95154 .95167 .95167 0.95173 0.95179 .95185	60 56 52 48 44 40 36 32 28 24 20
0 4 8 12 16 20 24 28 32 36 40 44	30 31 32 33 34 35 36 37 38 39 40 41	9.97089 .97093 .97096 .97099 9.97103 .97106 .97113 9.97116 .97119 .97123 .97126	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561 .93568 0.93575 .93582 .93589	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97308 9.97311 .97314 .97317	0.93941 .93948 .93955 .93962 0.93969 *.93976 .93982 .93989 0.93996 .94003 .94010	9.97474 .97478 .97481 .97484 9.97487 .97490 .97493 .97496 9.97499 .97502 .97505 .97508	0.94351 .94357 .94364 .94371 0.94377 .94384 .94397 0.94404 .94411 .94418	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674 .97674 .97680 .97683 .97686	0.94747 .94753 .94760 .94766 0.94779 .94779 .94792 0.94799 .94805 .94811 .94818	9.97831 .97834 .97837 .97840 9.97843 .97846 .97849 .97851 9.97854 .97857 .97860 .97863	0.95129 .95136 .95142 .95148 0.95154 .95167 .95167 .95173 0.95179 .95185 .95192	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40	30 31 32 33 34 35 36 37 38 39	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109 .97113 9.97116 .97119 .97123	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561 .93568 0.93575 .93582	9.97285 .97289 .97292 .97292 .97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321	0.93941 .93948 .93955 .93962 0.93969 *.93976 .93982 .93989 0.93996 .94003	9.97474 .97478 .97481 .97484 9.97484 9.97490 .97490 9.97499 .97502 .97505 9.97511	0.94351 .94357 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94404 .94411 .94418 .94424 0.94431	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674 .97677 9.97680 .97683 .97686	0.94747 .94753 .94760 .94766 0.94773 .94779 .94786 .94792 0.94799 .94805 .94811 .94818 0.94824	9.97831 .97834 .97837 .97840 9.97843 .97846 .97851 9.97854 .97854 .97863 9.97863	0.95129 .95136 .95142 .95148 0.95154 .95167 .95167 0.95173 0.95179 .95185	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	9.97089 .97093 .97096 .97099 9.97103 .97106 .97113 9.97116 .97119 .97123 .97126 9.97129	0.93518 .93525 .93532 .93539 0.93546 .93561 .93568 0.93575 .93582 .93589 0.93603	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97308 9.97311 .97314 .97317	0.93941 .93948 .93955 .93969 .93969 .93982 .93989 0.93996 .94003 .94010 .94017 0.94024	9.97474 .97478 .97481 .97484 9.97487 .97490 .97490 .97502 .97502 .97505 .97508	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94404 .94411 .94418	9.97656 .97659 .97662 .97665 9.97668 .97671 .97674 .97677 9.97680 .97683 .97689 9.97689	0.94747 .94753 .94760 .94766 0.94773 .94779 .94786 .94792 0.94799 .94805 .94818 0.94824 .94831	9.97831 .97834 .97837 .97840 9.97843 .97846 .97849 .97851 9.97854 .97857 .97860 .97863	0.95129 .95136 .95142 .95144 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9.97089 .97093 .97096 .97099 9.97103 .97106 .97113 9.97116 .97119 .97123 .97126 9.97129 .97132	0.93518 .93525 .93532 .93534 0.93546 .93561 .93568 0.93575 .93582 .93589 0.93603 .93611 0.93618	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321 9.97324 .97327 9.97330	0.93941 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031	9.97474 .97478 .97481 .97484 9.97487 .97490 .97499 .97502 .97505 .97508 9.97511 .97514	0.94351 .94357 .94367 .94371 0.94377 .94384 .94391 .94397 0.94404 .94411 .94418 0.94431 0.94431	9.97656 .97659 .97665 .97665 .97665 9.97668 .97671 .97677 9.97680 .97683 .97686 .97689 .97692 .97695 9.97698	0.94747 .94753 .94766 0.94766 0.94779 .94779 .94799 .94805 .94811 .94818 0.94824 .94831 0.94837	9.97831 .97834 .97834 .97840 9.97843 .97846 .97851 9.97854 .97857 .97860 .97863 9.97868 9.97868	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95204 .95210 0.95217	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9.97089 .97093 .97096 .97099 9.97103 .97106 .97119 .97119 .97123 .97126 9.97129 .97132 9.97136 13h	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561 .93562 0.93575 .93582 .93589 .93596 0.93603 .93611 0.93618	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321 9.97324 .97327 9.97330 13h	0.93941 .93948 .93955 .93962 0.93969 .93976 .93989 0.93996 .94003 .94010 .94017 0.94024 .94038	9.97474 .97478 .97481 .97484 9.97484 9.97490 .97496 9.97499 .97502 .97505 .97505 .97514 9.97514 9.97518	0.94351 -94357 -94364 -94371 -94377 -94384 -94391 -94397 -94494 -94411 -94418 -94424 -94438 -94438 -94438 -94438	9.97656 .97659 .97662 .97665 .97665 .9.97668 .97671 .97674 .97674 .97680 .97683 .97686 .97689 .97695 .97695 .97695	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 0.94799 .94805 .94811 .94824 .94834 0.94837	9.97831 .97834 .97834 .97840 9.97843 .97846 .97854 .97854 .97857 .97860 .97863 9.97868 9.97868 9.97871	0.95129 .95136 .95148 0.95154 0.95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95210 0.95217	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9.97089 .97093 .97096 .97099 9.97103 .97106 .97113 9.97116 .97119 .97123 .97126 9.97129 .97132 1.37h 1.07h 3m	0.93518 .93525 .93532 .93539 0.93546 .93554 .93561 .93568 0.93575 .93582 .93589 .93596 0.93603 .93611 0.93618	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321 9.97324 .97327 9.97330 13h 10h 7m	0.93941 .93948 .93955 .93962 0.93969 .93976 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031 0.94038 53m	9.97474 .97478 .97481 .97484 .97484 .97490 .97496 .97502 .97505 .97505 .97508 9.97511 .97514 9.97518 .97518	0.94351 .94357 .91364 .94371 0.94377 .94384 .94391 .94397 0.94404 .94411 .94418 .94424 0.94438 0.94444 49m 152°	9.97656 .97659 .97665 .97665 .97665 .97671 .97674 .97676 .97683 .97686 .97689 .97692 .97695 .97695 .97698 .97698	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 .94805 .94811 .94818 0.94831 0.94837 45m n 153°	9.97831 .97834 .97834 .97840 9.97843 .97846 .97854 .97857 .97856 .97860 .97868 9.97868 9.97868 10h 19n	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 .95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.97089 .97093 .97096 .97099 9.97103 .97106 .97119 .97113 .97123 .97126 9.97132 9.97136 13h 10h 5m 9.97139	0.93518 .93525 .93532 .93534 0.93546 .93561 .93568 0.93575 .93582 .93589 .93696 0.93603 .93611 0.93618 57m 150°	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97311 .97314 .97317 .97321 9.97324 .97327 9.97330 13h 10h 7m 9.97333	0.93941 .93948 .93955 .93962 0.93969 .93976 .93989 0.93996 .94003 .94010 .94017 0.94024 .9403 0.94038 53m 151°	9.97474 .97478 .97481 .97484 .97484 .97490 .97493 .97496 .97502 .97505 .97505 .97514 .97514 .97518 .97518 .97518	0.94351 .94357 .94367 .94371 0.94377 .94384 .94391 .94397 0.94404 .94411 .94418 .94424 0.94431 .94438 0.94441 49m n 152° 0.94451	9.97656 .97659 .97662 .97665 .97668 .97671 .97674 .97677 9.97680 .97683 .97686 .97689 9.97692 9.97695 9.97695 9.97695 9.97701	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 .94805 .94811 .94824 .94831 0.94837 45m n 153°	9.97831 .97834 .97837 .97840 9.97843 .97846 .97854 .97857 .97860 .97863 9.97866 .97868 9.97868 9.97871 13h 10h 19n 9.97874	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95204 .95210 0.95217 41m n 154°	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.97089 .97093 .97096 .97099 9.97103 .97106 .97113 9.97113 9.97123 .97126 9.97129 .97132 9.97136 10h 3m 9.97139 9.97139	0.93518 .93525 .93532 .93539 0.93546 .93561 .93562 0.93575 .93589 .93589 0.93603 .93618 57m 150° 0.93625 .93632	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97314 .97317 .97321 9.97324 .97327 9.97330 .13h 10h 7m 9.97333 .97337	0.93941 .93948 .93955 .93962 0.93969 *.93976 .93989 0.93996 .94010 .94017 0.94024 .94031 0.94038 53m 151° 0.94045 .94051	9.97474 .97478 .97484 9.97484 9.97490 .97490 9.97502 .97505 .97508 9.97514 9.97514 9.97518 13h 10h 11n 9.97521 .97524	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94404 .94411 .94418 .94424 0.94431 .94438 0.94444 49m n 152° 0.94451 .94458	9.97656 .97659 .97662 .97665 9.97668 9.97674 .97674 .97674 .97680 .97683 .97686 .97689 9.97695 9.97695 13h 10h 15m 9.97701 .97704	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 0.94799 .94805 .94811 .94818 0.94824 .94837 45m 0.94837 45m 0.94844 .94850	9.97831 .97834 .97837 .97840 9.97843 .97846 .97857 9.97854 .97857 .97860 .97863 9.97866 .97868 9.97871 .97869 .97868 .97868 .97868 .97868 .97868 .97868 .97868 .97877	0.95129 .95136 .95142 .95148 .95161 .95167 .95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154°	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 12 12 20 24 28 32 36 40 448 55 56 6 6 7 8	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	9.97089 .97093 .97096 .97099 9.97103 .97106 .97119 .97113 9.97123 .97126 9.97129 .97132 9.97136 10h 3m 9.97139 .97142 .97142	0.93518 .93525 .93532 .93539 0.93546 .93561 .93562 .93589 .93589 .93589 0.93603 .93618 57m 150° 0.93625 .93632 .93632	9.97285 .97289 .97292 .97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321 9.97324 .97327 9.97330 13h 10h 7m 9.97333 .97337 .97340	0.93941 .93948 .93955 .93962 0.93969 .93982 .93989 0.93996 .94010 .94017 0.94024 .94038 53m 151° 0.94045 .94051 .94055	9.97474 .97478 .97481 .97481 9.97487 .97490 .97493 .97496 9.97502 .97505 .97508 9.97511 .97514 9.97518 13h 10h 11n 9.97521 .97524 .97527	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94401 .94418 .9424 0.94431 .94434 0.94444 49m n 152° 0.94451 .94458 .94458	9.97656 .97659 .97665 .97665 9.97665 9.97668 .97677 9.97680 .97683 .97686 .97689 9.97692 .97695 9.97698 13h 10h 15m 9.97704 .97704	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 0.94799 .94805 .94811 .94818 0.94837 45m 153° 0.94844 .94850 .94850 .94850	9.97831 .97834 .97837 .97840 9.97843 .97849 .97857 .97854 .97857 .97860 .97863 9.97866 .97868 9.97871 .33h .10h 19n 9.97874 .97877 .97880	0.95129 .95136 .95142 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95219 0.95214 .95210 0.95217 41m 0.95223 .95229 .95235	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 12 16 20 24 28 32 36 40 44 48 52 56 6 8 12	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109 .97113 9.97116 .97123 .97129 .97129 .97132 9.97136 .97139 .97149 .97144	0.93518 .93525 .93532 .93534 .93546 .93561 .93568 .93582 .93582 .93589 .93603 .93611 0.93618 57m 150° 0.93625 .93632 .93639 .93646	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321 9.97324 .97327 9.97330 .13h .10h 7m 9.97333 .97337 .97340 .97340	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94011 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94058	9.97474 9.97478 9.7481 9.97484 9.97490 9.97490 9.97502 9.97505 9.97508 9.97514 9.97518 13h 10h 11n 9.97521 9.97521 9.97523	0.94351 .94357 .94367 .94371 0.94377 .94384 .94397 0.94404 .94411 .94418 .94438 0.94444 49m 152° 0.94451 .94458 .94458 .94458	9.97656 .97659 .97665 .97665 9.97668 .97671 .97677 .97678 .97683 .97686 .97689 .97692 .97695 9.97698 .376 .97701 .97701 .97707 .97710	0.94747 .94753 .94766 0.94766 0.94779 .94799 0.94799 .94805 .94811 .94818 0.94824 .94831 0.94837 45m 153° 0.94844 .94850 .94857 .94863	9.97831 9.97834 9.97834 9.97840 9.97843 9.97846 9.97854 9.97857 9.97866 9.97863 9.97868 9.97871 13h 10h 19n 9.97874 9.97874 9.97874 9.97880 9.97883	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95204 .95210 0.95217 41m 154° 0.95229 .95229 .95229 .95229	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 48 52 56 56 5 12 16	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	9.97089 .97093 .97096 .97099 9.97103 .97106 .97119 .97113 9.97123 .97126 9.97129 .97132 9.97136 10h 3m 9.97139 .97142 .97142	0.93518 .93525 .93532 .93534 0.93546 .93561 .93568 0.93575 .93582 .93589 .93603 .93611 0.93618 57m 150° 0.93625 .93632 .93639 .936364 0.93653	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97327 9.97324 .97327 9.97330 13h 10h 7m 9.97333 .97343 .97343 .97344	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94051 .94051 .94065 0.94072	9.97474 .97478 .97481 .97484 9.97487 .97490 .97496 9.97502 .97505 .97508 9.97511 9.97514 9.97518 10h 11n 9.97521 .97524 .97527 .97530 9.97533	0.94351 .94357 .94367 .94377 .94384 .94391 .94397 0.94404 .94411 .94418 .94438 0.94444 49m n 152° 0.94451 .94458 .94458 .94468 .94471 0.94477	9.97656 .97659 .97665 .97665 .97665 .97667 .97674 .97674 .97674 .97680 .97683 .97686 .97689 .97695 .97695 .97695 .97701 .97701 .97704 .97701 .97710 .97710 .997710	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 .94805 .94811 .94831 0.94834 0.94837 7 153° 0.94844 .94850 .94850 .94850 .94860	9.97831 .97834 .97834 .97840 9.97849 .97854 .97854 .97857 .97860 .97868 .97868 9.97871 .97877 .97880 .97883 9.97883 9.97883 9.97883	0.95129 .95136 .95142 .95143 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95219 0.95214 .95210 0.95217 41m 0.95223 .95229 .95235	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 12 16 20 24 28 32 36 40 44 48 52 56 6 8 12	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 44 45 46 47 48 49	9.97089 .97093 .97096 .97099 9.97103 .97106 .97119 .97113 .97123 .97126 9.97132 9.97132 9.97136 10h 3m 9.97142 .97149 .97149 .97149 .97149	0.93518 .93525 .93532 .93534 .93546 .93561 .93568 .93582 .93582 .93589 .93603 .93611 0.93618 57m 150° 0.93625 .93632 .93639 .93646	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97314 .97317 .97321 9.97324 9.97324 .97327 9.97330 10h 7m 9.97333 .97340 .97343 9.97343 9.97349	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94011 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94058	9.97474 .97478 .97484 9.97484 9.97490 .97499 .97502 .97505 .97508 9.97514 9.97518 13h 10h 11n 9.97521 .97524 .97527 .97530 9.97533 .97536	0.94351 .94357 .94367 .94371 0.94377 .94384 .94397 0.94404 .94411 .94418 .94438 0.94444 49m 152° 0.94451 .94458 .94458 .94458	9.97656 .97659 .97665 .97665 9.97668 .97671 .97674 .97677 9.97680 .97683 .97686 .97686 .97689 .97695 .97695 .97701 .97704 .97707 .97710 .97711 .97711	0.94747 .94753 .94766 0.94766 0.94779 .94799 0.94799 .94805 .94811 .94818 0.94824 .94831 0.94837 45m 153° 0.94844 .94850 .94857 .94863	9.97831 .97834 .97837 .97840 .97843 .97846 .97854 .97857 .97860 .97863 .97868 .97868 .97868 .97868 .97871 .97877 .97880 .97873 .97883 .97883 .97883 .97885 .97885	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154° 0.95223 .95229 .95235 .95241 0.95248	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 56 8 12 16 16 16 16 16 16 16 16 16 16 16 16 16	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	9.97089 .97093 .97099 9.97103 .97106 .97109 .97113 9.97116 .97119 .97123 .97129 .97132 9.97132 9.97132 9.97132 .97142 .97149 .97149 .97149 .97149 .97149 .97149 .97152	0.93518 .93525 .93532 .93534 .93554 .93561 .93568 0.93575 .93582 .93589 .93696 0.93611 0.93618 57m 150° 0.93625 .93646 0.93653 .93646 0.93653	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97327 9.97324 .97327 9.97330 13h 10h 7m 9.97333 .97343 .97343 .97344	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94051 .94065 0.94072 .94079	9.97474 .97478 .97481 .97484 9.97487 .97490 .97496 9.97502 .97505 .97508 9.97511 9.97514 9.97518 10h 11n 9.97521 .97524 .97527 .97530 9.97533	0.94351 .94357 .94364 .94371 0.94377 0.94397 0.94494 .94411 .94418 .94438 0.94414 49m n 152° 0.94451 .94458 .94451 .94458 .94477 .94484	9.97656 .97659 .97662 .97663 9.97663 9.97664 .97674 .97674 .97683 .97686 .97686 .97689 9.97695 9.97695 9.97698 13h 10h 15n 9.97701 .97704 .97707 .97710 9.97713 .97716 .97718	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 0.94799 .94805 .94811 .94831 0.94834 0.94834 0.94836 0.94844 .94850 .94869 .94869 .94869 .94869	9.97831 .97834 .97834 .97840 9.97849 .97854 .97854 .97857 .97860 .97868 .97868 9.97871 .97877 .97880 .97883 9.97883 9.97883 9.97883	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154° 0.95223 .95229 .95235 .95241 0.95248 .95248	600 566 522 484 440 366 328 242 200 166 112 84 440 366 526 548 444 444 446 366 528 448 449
8 12 16 20 24 48 52 56 8 12 16 20 24 4 8 12 21 6 20 24 4 8 20 22 4	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 50 51	9.97089 .97093 .97096 .97099 9.97103 .97106 .97113 9.97123 .97126 9.97129 .97132 9.97136 13h 10h 3m 9.97142 .97146 .97149 9.97156 .97156	0.93518 .93525 .93532 .93539 0.93546 .93561 .93562 .93589 .93589 .9369 0.93603 .93618 57m 150° 0.93625 .93632 .93632 .93632 .93646 0.93653 .93660	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97314 .97317 .97321 9.97324 .97327 9.97330 .13h .10h 7m 9.97333 .97337 .97340 .97349 .97349 .97349 .97349	0.93941 .93948 .93948 .93955 .93962 0.93969 0.93996 .94003 .94010 .94017 0.94038 53m 151° 0.94045 .94051 .94051 .94058 .94065 0.94079 .94079	9.97474 .97478 .97481 9.97484 9.97489 .97490 .97499 .97502 .97505 .97508 9.97511 .97518 13h 10h 11n 9.97521 .97524 .97527 .97533 .97533 .97536 .97539	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94401 .94411 .94418 .94431 .94438 0.94444 49m n 152° 0.94451 .94458 .94458 .94464 .94477 0.94477 0.94471	9.97656 .97659 .97665 .97665 9.97668 .97671 .97674 .97677 9.97680 .97683 .97686 .97686 .97689 .97695 .97695 .97701 .97704 .97707 .97710 .97711 .97711	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 0.94799 .94805 .94811 .94818 0.94824 .94837 0.94844 .94850 .94857 .94863 0.94869 .94869 .94869 .94869 .94869	9.97831 .97834 .97837 .97840 9.97843 .97846 .97857 .97854 .97856 .97868 9.97866 .97868 9.97871 .13h .10h 19n .97877 .97880 .97883 .97883 .97885 .97885 .97888 .97885 .97888	0.95129 .95136 .95142 .95148 0.95154 .95161 .95167 .95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154° 0.95223 .95241 0.95248 .95246 .95246 .95260	600 556 522 484 440 36 32 288 24 20 16 112 8 4
0 4 8 8 12 16 20 24 48 52 56 56 56 12 16 20 24 28	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 49 50 51 53 54	9.97089 .97093 .97096 .97099 9.97103 .97106 .97109 .97113 9.97116 .97129 .97129 .97132 9.97136 13h 10h 3m 9.97149 .97149 .97146 .97149 .97152 .97152 .97152 .97159 .97159	0.93518 .93525 .93532 .93534 0.93546 .93561 .93568 0.93575 .93582 .93589 .93696 0.93611 0.93618 57m 150° 0.93625 .93632 .93646 0.93653 .93646 0.93667 0.93667 0.93682	9.97285 .97289 .97292 .97298 .97301 .97305 .97308 9.97314 .97317 .97321 9.97324 .97327 9.97330 13h 10h 7m 9.97333 .97337 .97340 .97346 .97349 .97352 .97356	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94011 0.94038 53m 151° 0.94045 .94051 .94055 .94055 0.94072 .94079 .94079	9.97474 .97478 .97481 9.97484 9.97490 .97499 .97502 .97505 .97508 9.97514 9.97518 13h 10h 11n 9.97521 .97524 .97527 .97530 9.97533 .97536 .97539 .97548	0.94351 .94357 .94367 .94371 0.94377 .94384 .94397 0.94404 .94411 .94418 0.94431 .91438 0.94444 49m 152° 0.94451 .94458 .94458 .94471 0.94477 .94481 .94491	9.97656 9.97659 9.7662 9.97663 9.97663 9.97674 9.97680 9.97683 9.97686 9.97689 9.97695 9.97695 9.97701 9.97704 9.97704 9.97710 9.97713 9.97716 9.97718 9.97724 9.97724	0.94747 .94753 .94760 .94766 0.94779 .94779 .94796 .94895 .94811 .94831 0.94834 0.94834 -94831 0.94836 0.94869 .94869 .94869 .94869 .94869 .94869 .94889 .94889 .94889	9.97831 9.97834 9.97834 9.97840 9.97843 9.97854 9.97857 9.97864 9.97863 9.97868 9.97871 13h 10h 19n 9.97874 9.97877 9.97878 9.97883 9.97883 9.97883 9.97883 9.97883	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95210 0.95227 41m 154° 0.95223 .9528 .95284 0.95244 0.95244 0.95246 .95260 .95266	600 556 528 444 400 366 322 288 244 200 166 112 84 444 440 440 566 552 488 444 440
8 12 16 20 24 28 32 36 40 44 48 52 56 56 8 12 24 28 32 36 40 44 48 8 12 16 16 16 16 16 16 16 16 16 16 16 16 16	30 31 32 33 35 36 37 38 40 41 42 43 44 45 46 47 49 50 51 52 53 54 55 54 55	9.97089 .97093 .97099 9.97103 .97106 .97109 .97113 9.97123 .97129 .97132 9.97136 10h gm 9.97142 .97149 .97149 .97149 9.97152 .97156 .97159 .97169 .97169 .97169 .97169	0.93518 .93525 .93532 .93533 0.93546 .93561 .93568 0.93575 .93589 .93596 0.93603 .93611 0.93618 57m 150° 0.93625 .93632 .93646 0.93663 .93666 0.93667 .93667 .93666 .93667 .93689 .93688	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97314 .97317 .97321 9.97321 9.97327 9.97330 13h 10h 7m 9.97333 .97337 .97340 .97349 .97349 .97352 .97352 .97352 .97362 .97365	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94031 0.94038 53m 151° 0.94045 .94051 .94051 .94058 .94068 .94072 .94079 .94079 .94093 0.94099 .94106 .94113	9.97474 .97478 .97487 .97484 9.97489 .97499 .97502 .97505 .97508 9.97514 9.97514 9.97518 13h 10h 11n 9.97521 .97524 .97530 9.97533 9.97533 9.97542 9.97542 9.97542 9.97542 9.97548 .97548 .97548 .97548 .97548	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94401 .94411 .94418 .94438 0.94444 49m n 152° 0.94451 .94458 .94454 .94471 0.94477 0.9454 .94491 .94491 .94501 .94501 .94511 .94511	9.97656 9.97659 9.97662 9.97663 9.97668 9.97674 9.97680 9.97683 9.97686 9.97689 9.97698 13h 10h 15n 9.97701 9.97704 9.97707 9.97713 9.97714 9.97718 9.97724 9.97724 9.97727	0.94747 .94753 .94760 .94766 0.94779 .94779 .94792 0.94799 .94805 .94811 .94818 0.94837 0.94834 .94830 0.94834 .94850 .94869 .94869 .94869 .94869 .94869 .94889 0.94895 .94890 .94899	9.97831 .97834 .97837 .97840 9.97843 .97846 .97854 .97857 .97860 .97863 9.97863 9.97868 9.97871 .13h .10h 19n 9.97874 .97880 .97883 9.97883 9.97883 9.97885 .97889 .97899 .97902	0.95129 .95136 .95148 0.95154 .95161 .95167 .95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154° 0.95223 .95248 .95248 .95248 .95260 .95266 0.95272 .95278 .95285	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 40 56 52 8 4 4 4 4 6 5 6 6 5 7 8 8 8 8 8 8 8 8 8 8
0 4 8 8 12 16 20 24 48 52 56 56 56 22 366 40 44 48 82 28 64 40 44 44 48 82 28 64 40 44 44	30 31 32 33 35 36 37 38 39 40 41 42 43 44 49 50 51 52 53 55 56	9.97089 .97093 .97096 .97099 9.97103 .97106 .97113 9.97123 .97126 9.97129 .97132 9.97136 13h 10h 3m 9.97142 .97146 .97149 9.97159 .97159 .97162 9.97162 9.97162 9.97162 9.97163 .97169 .97179 .97179	0.93518 .93525 .93532 .93534 .93554 .93561 .93563 .93582 .93589 .93586 0.93603 .93611 0.93618 57m 150° 0.93625 .93632 .93630 .93646 0.93653 .93667 0.93682 .936882 .936882 .936882 .936882	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321 9.97324 .97327 9.97330 .13h .10h 7m 9.97333 .97344 .97349 .97349 .97349 .97349 .97349 .97359 .97369 .97369 .97369	0.93941 .93948 .93948 .93955 .93962 0.93969 0.93996 .94003 .94010 .94017 0.94034 151° 0.94045 .94051 .94051 .94051 .94058 .94065 0.94072 .94079 .94086 .94093 0.94099 .94108 .94113 .94113	9.97474 .97478 .97481 9.97484 9.97489 .97490 .97499 .97502 .97505 .97508 9.97511 .97514 .97521 .97524 .97527 .97530 9.97533 .97533 .97536 .97542 9.97542 9.97542 9.97542 9.97542 9.97542 9.97542 9.97542 9.97542 9.97545 .97548 .97554	0.94351 .94357 .94367 .94371 0.94377 .94384 .94397 0.94404 .94411 .94418 0.94431 .91438 0.94444 49m 152° 0.94451 .94458 .94458 .94464 .94471 0.94477 .94497 0.94517 .94517 .94517 .94517	9.97656 9.97659 9.97662 9.97663 9.97668 9.97674 9.97680 9.97683 9.97692 9.97698 13h 10h 15n 9.97701 9.97701 9.97710 9.97713 9.97716 9.97713 9.97724 9.97724 9.97724 9.97730 9.97730	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 0.94799 .94805 .94811 .94818 0.94824 .94837 0.94844 .94850 .94850 .94863 0.94869 .94869 .94869 .94889 .94889 .94889 .94895 .94891 .94891 .94908 .94901	9.97831 9.97834 9.97834 9.97840 9.97843 9.97846 9.97851 9.97857 9.97866 9.97863 9.97868 9.97871 13h 10h 19n 9.97874 9.97873 9.97883 9.97883 9.97885 9.97889 9.97891 9.97894 9.97899 9.97902 9.97905	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 .95204 .95210 0.95217 41m 10.95223 .95229 .95235 .95241 0.95248 .95254 .95266 0.95272 .95278 .95285 .95291	60 56 52 48 44 40 36 32 28 24 20 16 56 52 48 44 40 56 60 52 48 44 40 56 52 48 40 60 56 52 48 48 40 60 60 60 60 60 60 60 60 60 60 60 60 60
0 4 8 8 12 16 20 24 4 8 52 56 56 56 12 16 20 24 4 8 8 12 16 40 44 48 8 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42 44 45 46 47 49 50 51 52 53 54 55 65 57	9.97089 .97093 .97099 9.97103 .97106 .97109 .97113 9.97116 .971123 .97126 9.97129 .97132 9.97136 13h 10h 3m 9.97146 .97149 9.97152 .97146 .97156 .97162 .97169 .97169 .97175 .97175	0.93518 .93525 .93532 .93532 .93534 .93546 .93561 .93568 .93582 .93582 .93589 .93611 0.93618 57m 150° 0.93625 .93632 .93632 .93636 .93660 .93667 .93667 .93667 .93674 0.93682 .93689 .93703 0.93710	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97308 9.97311 .97314 .97317 .97321 9.97324 .97327 9.97330 13h 10h 7m 9.97333 .97337 .97343 .97346 .97349 .97359 .97356 9.97359 .97368 9.97371	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94011 0.94038 53m 151° 0.94045 .94058 .94058 .94058 .94058 .94059 .94072 .94079 .94079 .94099 .94106 .94113 .94120 0.94127	9.97474 .97478 .97484 9.97484 9.97490 .97496 9.97502 .97505 .97505 .97514 9.97514 9.97514 9.97521 .97524 .97524 .97527 .97530 9.97533 .97536 .97539 .97542 9.97545 .97546 .97554 .97554 .97554 .975554 .975554	0.94351 .94357 .94367 .94371 0.94377 .94384 .94397 0.94404 .94411 .94418 0.94431 .91438 0.94444 49m 152° 0.94451 .91458 .91458 .91454 .91477 0.91464 .91471 0.91477 .91484 .91497 0.91504 .94511 .94524 0.94531	9.97656 9.97659 9.76659 9.76659 9.97668 9.97668 9.97671 9.97680 9.97683 9.97686 9.97692 9.7695 9.97695 9.97701 9.97701 9.97710 9.97713 9.97716 9.97713 9.97721 9.97724 9.97727 9.97733 9.97733	0.94747 .94753 .94766 0.94766 0.94766 0.94779 .94792 0.94799 .94805 .94811 .94831 0.94837 45m 153° 0.94844 .94857 .94859 .94869 .94869 .94869 .94882 .94889 .94889 .94889 .94891 .94901 .94901 .94901	9.97831 .97834 .97834 .97846 .97849 .97849 .97857 .97860 .97863 .9.97868 .9.97868 .9.97871 .97877 .97880 .97883 .9.97883 .9.97888 .97888 .97889 .97899 .97902 .97905 .9.97908	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95204 .95210 0.95217 41m 154° 0.95223 .95229 .95235 .95241 0.95248 .95254 .95266 0.95272 .95278 .95285 .95291 0.95297	600 566 522 488 444 400 366 322 884 400 366 552 488 444 400 366 328 248 249 249
0 4 8 82 16 20 24 48 82 36 40 44 48 48 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 50 51 52 55 55 56 57 58	9.97089 .97093 .97099 9.97103 .97106 .97109 .97113 9.97123 .97126 9.97132 9.97132 9.97132 9.97136 10h gm 9.97142 .97146 .97149 .97149 .97156 .97159 .97169 .97169 .97172 .97172 .97172 .97173	0.93518 .93525 .93532 .93534 0.93546 .93561 .93568 0.93575 .93582 .93589 .93696 0.93611 0.93618 57m 150° 0.93625 .93632 .93639 .93646 0.93653 .93660 .93667 0.93682 .93689 .93696 .93696 .93696 .93703 0.93710	9.97285 .97289 .97292 .97295 9.97298 .97301 .97305 .97311 .97314 .97317 .97321 9.97327 9.97330 .13h .10h 7m 9.97333 .97337 .97340 .97349 .97352 .97359 .97362 .97368 .97368 .9.97371 .97575	0.93941 .93948 .93948 .93955 .93962 0.93969 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94051 .94051 .94052 0.94072 .94079 .94099 .94106 .94113 .94120 .94113 .94127 .94134	9.97474 .97478 .97484 9.97484 9.97490 .97496 9.97505 .97505 .97506 9.97511 .97514 9.97518 10h 11n 9.97521 .97524 .97527 .97530 9.97533 .97533 .97536 .97539 .97548 .97545 .97554 .97556 .97556	0.94351 -94357 -94364 -94377 -94384 -94397 -94397 -94491 -94411 -94418 -94411 -94438 -94441 -94451 -94451 -94477 -94464 -94471 -94497 -94497 -94511 -94511 -94512 -94511 -94531 -94531	9.97656 .97659 .97665 .97665 .97665 .97665 .97665 .97665 .97665 .97667 .97674 .97674 .97680 .97683 .97686 .97689 .97695 .97695 .97701 .97704 .97701 .97710 .97716 .97718 .97716 .97718 .97721 .97721 .97730 .97733 .97736 .97736 .97739	0.94747 .94753 .94760 .94766 0.94779 .94779 .94799 .94805 .94811 .94831 0.94837 0.94844 .94850 .94850 .94869 .94869 .94869 .94869 .94869 .94869 .94895 .94895 .94914 .94908 .94908 .94908 .94908 .94908 .94914 .94921 .94927	9.97831 .97834 .97834 .97840 9.97843 .97846 .97849 .97857 .97860 .97868 .97868 9.97871 	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95204 .95210 0.95217 41m 0.95223 .95229 .95235 .95241 0.95248 .95246 .95266 0.95272 .95272 .95278 .95285 .95285 .95285	600 566 528 448 440 366 328 244 200 166 128 440 366 328 244 440 366 328 244 440 366 328 438 446 446
0 4 8 12 16 20 24 48 8 52 56 40 44 44 48 82 556	30 31 32 33 35 36 37 38 40 41 42 42 44 44 45 50 51 55 55 56 57 59	9.97089 .97093 .97099 9.97103 .97106 .971109 .97113 9.97123 .97129 .97132 9.97132 9.97132 9.97139 .97142 .97149 .97149 .97149 .97150 .97150 .97169 .97169 .97169 .97179 .97179 .97179 .97179 .97182 .97182	0.93518 .93525 .93532 .93533 0.93546 .93561 .93568 0.93575 .93589 .93596 0.93611 0.93618 57m 150° 0.93625 .93632 .93646 0.93653 .93660 .93667 0.93682 .93689 .93689 .93689 .93689 .93689 .93696 .93710 .93717 .93774	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97314 .97317 .97321 9.97324 9.97327 9.97330 .13h .97340 .97343 .97349 .97349 .97352 .97365 .97365 .97365 .97378	0.93941 .93948 .93948 .93955 .93962 .93969 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94051 .94052 .94079 .94079 .94099 .94106 .94113 .94127 .94127 .94127	9.97474 .97478 .97484 9.97484 9.97490 .97499 .97502 .97505 .97508 9.97514 9.97514 9.97521 .97524 .97524 .97533 .97536 .97539 .97542 9.97545 .97546 9.97554 9.97554 9.97554 9.97556 9.97556 9.97563	0.94351 .94357 .94364 .94371 0.94377 0.94391 .94397 0.94404 .94411 .94418 .94424 0.94438 0.94434 0.94451 .94458 .94464 .94477 0.94457 0.94511 .94504 .94537 .94534 .94537 .94534	9.97656 9.97659 9.76659 9.76659 9.97665 9.97665 9.97665 9.97667 9.97674 9.97680 9.97683 9.97686 9.97689 9.97695 9.97695 9.97701 9.97701 9.97710 9.97713 9.97718 9.97724 9.97724 9.97733 9.97733 9.97733 9.97739 9.97742	0.94747 .94753 .94760 .94766 0.94772 .94779 .94786 .94799 .94805 .94811 .94831 0.94834 0.94837 7 153° 0.94844 .94850 .94869 .94869 .94869 .94889 0.94895 .94901 .94901 .94901 .94927 .94933	9.97831 .97834 .97837 .97840 .97843 .97846 .97849 .97857 .97860 .97863 .97868 .97868 .97868 .97871 .97874 .97877 .97883 .97883 .97883 .97883 .97884 .97891 .97899 .97902 .97905 .97905 .97911 .97914	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154° 0.95223 .95229 .95235 .95241 0.95248 .95266 0.95272 .95272 .95272 .95272 .95273 .95291 0.95297	600 566 522 484 440 366 328 288 441 400 566 522 484 440 366 328 328 248 249 249 366 328 328 328 438 449 449
0 4 8 82 16 20 24 48 82 36 40 44 48 48 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 50 51 52 55 55 56 57 58	9.97089 .97093 .97099 9.97103 .97106 .97119 .97113 9.97129 .97129 .97132 9.97132 9.97132 9.97139 .97142 .97149 .97149 .97149 .97150 .97150 .97169 .97169 .97169 .97179 .97179 .97179 .971782 .97182 .97182 .97183	0.93518 .93525 .93532 .93533 0.93546 .93561 .93568 0.93575 .93589 .93596 0.93611 0.93618 57m 150° 0.93625 .93632 .93646 0.93653 .93660 .93667 0.93689 .93689 .93689 .93689 .93689 .93689 .93689 .93717 .93714 0.93731	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97314 .97317 .97321 9.97324 9.97324 9.97330 .13h .97340 .97343 9.97349 .97352 .97356 9.97359 .97365 .97365 .97365 .97378 9.97378	0.93941 .93948 .93948 .93955 .93962 .93969 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94051 .94052 .94079 .94079 .94099 .94113 .94120 0.94127 .94134 .94114 .941147	9.97474 .97478 .97484 9.97484 9.97490 .97499 .97502 .97505 .97508 9.97514 9.97514 9.97514 9.97521 .97524 .97527 .97530 9.97533 .97536 .97542 9.97542 9.97545 .97546 9.97554 9.97554 9.97554 9.97556 9.97566	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94401 .94411 .94413 .94438 0.94444 49m n 152° 0.94451 .94458 .94464 .94471 0.94511 .94597 0.94501 .94511 .94537 .94534 0.94534 0.94534 0.94554 0.94553	9.97656 9.97659 9.7665 9.97665 9.97665 9.97665 9.97665 9.97667 9.97674 9.97680 9.97680 9.97689 9.97695 9.97695 9.97701 9.97704 9.97707 9.97710 9.97713 9.97716 9.97724 9.97724 9.97733 9.97736 9.97739 9.97739 9.97739 9.97739	0.94747 .94753 .94760 .94766 0.94772 .94779 .94786 .94792 0.94799 .94831 0.94831 0.94831 0.94831 0.94831 0.94830 0.94869 .94869 .94869 .94889 0.94895 .94891 .94901 .94901 .94903 .94901 .94927 .94933 0.94940	9.97831 .97834 .97834 .97840 .97849 .97849 .97857 .97860 .97863 9.97866 .97868 9.97871 .13h .10h 19h .97883 .97883 .97883 .97883 .97883 .97891 .97899 .97902 .97908 .97908 .97911 .97914 .9.97916	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154° 0.95223 .95229 .95235 .95241 0.95248 .95266 0.95272 .95272 .95272 .95285 .95297 .95303 .95291 0.95273	600 566 528 448 440 366 328 244 200 166 128 440 366 328 244 440 366 328 244 440 366 328 438 446 446
0 4 8 12 16 20 24 48 8 52 56 40 44 44 48 82 556	30 31 32 33 35 36 37 38 40 41 42 42 44 44 45 50 51 55 55 56 57 59	9.97089 .97093 .97099 9.97103 .97106 .97119 .97113 9.97129 .97129 .97132 9.97132 9.97132 9.97139 .97142 .97149 .97149 .97149 .97150 .97150 .97169 .97169 .97169 .97179 .97179 .97179 .971782 .97182 .97182 .97183	0.93518 .93525 .93532 .93533 0.93546 .93561 .93568 0.93575 .93589 .93596 0.93611 0.93618 57m 150° 0.93625 .93632 .93646 0.93653 .93660 .93667 0.93682 .93689 .93689 .93689 .93689 .93689 .93696 .93710 .93717 .93774	9.97285 .97289 .97292 .97295 9.97298 .97305 .97305 .97314 .97317 .97321 9.97324 9.97324 9.97330 .13h .97340 .97343 9.97349 .97352 .97356 9.97359 .97365 .97365 .97365 .97378 9.97378	0.93941 .93948 .93948 .93955 .93962 .93969 .93989 0.93996 .94003 .94010 .94017 0.94024 .94031 0.94038 53m 151° 0.94045 .94051 .94051 .94052 .94079 .94079 .94099 .94106 .94113 .94127 .94127 .94127	9.97474 .97478 .97484 9.97484 9.97490 .97499 .97502 .97505 .97508 9.97514 9.97514 9.97521 .97524 .97524 .97533 .97536 .97539 .97542 9.97545 .97546 9.97554 9.97554 9.97554 9.97556 9.97556 9.97563	0.94351 .94357 .94364 .94371 0.94377 .94384 .94391 .94397 0.94401 .94411 .94413 .94438 0.94444 49m n 152° 0.94451 .94458 .94464 .94471 0.94511 .94597 0.94501 .94511 .94537 .94534 0.94534 0.94534 0.94554 0.94553	9.97656 9.97659 9.76659 9.76659 9.97665 9.97665 9.97665 9.97667 9.97674 9.97680 9.97683 9.97686 9.97689 9.97695 9.97695 9.97701 9.97701 9.97710 9.97713 9.97718 9.97724 9.97724 9.97733 9.97733 9.97733 9.97739 9.97742	0.94747 .94753 .94760 .94766 0.94772 .94779 .94786 .94792 0.94799 .94831 0.94831 0.94831 0.94831 0.94831 0.94830 0.94869 .94869 .94869 .94889 0.94895 .94891 .94901 .94901 .94903 .94901 .94927 .94933 0.94940	9.97831 .97834 .97837 .97840 .97843 .97846 .97849 .97857 .97860 .97863 .97868 .97868 .97868 .97871 .97874 .97877 .97883 .97883 .97883 .97883 .97884 .97891 .97899 .97902 .97905 .97905 .97911 .97914	0.95129 .95136 .95148 0.95154 .95161 .95167 .95173 0.95179 .95185 .95192 .95198 0.95204 .95210 0.95217 41m n 154° 0.95223 .95229 .95235 .95241 0.95248 .95266 0.95272 .95272 .95272 .95285 .95291 0.95297 .95303 .95309 0.95315	60 56 52 48 44 40 36 32 28 24 20 16 12 8 44 40 56 52 48 44 40 56 52 48 44 40 56 52 48 48 48 48 48 48 48 48

						Haversi	nes.					
		10h 20m	155°	10h 24n	156°	10h 28n	157°	10h 32n	158°	10h 361	n 159°	i
s			Nat. Hav.		Nat. Hav.		Nat. Hav.	Log. Hav.			Nat. Hav.	
0	0	9.97916	0.95315	9.98081	0.95677	9.98239	0.96925	9.98389	0.96359	9.98533	0.96679	60
4	1	.97919	.95322	.98084	.95683	.98241	.96031	.98392	.96365	.98536	.96684	56
8 12	2	.97922	.95328	.98086	.95689 .95695	.98244 .98246	.96037 .96042	.98394	.96370	.98538	.96689	52
16	4	9.97927	0.95340	9.98092	0.95701	9.98249	0.96048	.98397 9.98399	.96376 0.96381	98540 9.98543	.96695 0.96700	48
20	5	.97930	.95346	.98094	.95707	.98251	.96054	.98402	.96386	.98545	.96705	40
24	6	.97933	.95352	.98097	.95713	.98254	.96059	.98404	.96392	.98547	.96710	36
28	7	.97936	.95358	.98100	.95719	.98256	.96065	.98406	.96397	.98550	.96715	32
32	8	9.97939	0.95364	9.98102	0.95724	9.98259	0.96071	9.98409	0.96403	9.98552	0.96721	28
36	9	.97941	.95371	.98105	.95730	.98262	.96076	.98411	.96468	.98554	.96726	24
40	10	.97944	.95377	.98108	.95736	.98264	.96082	.98414	.96413	.98557	.96731	20
44 48	11 12	0.97947 0.97950	.95383 0.95389	9.98110 9.98113	.95742 0.95748	.98267 9.98269	.96088 0.96093	.98416 9.98419	.96419 0.96424	0.98559 0.98561	.96736 0.96741	16 12
52	13	.97953	.95395	.98116	.95754	.98272	.96099	.98421	.96430	.98564	.96746	8
56	14	9.97955	0.95401	9.98118	0.95760	9.98274	0.96104	9.98424	0.96435	9.98566	0.96752	4
		13h			35m	1	31m	-	27m		23m	1
		10h 21m		10h 25m	-	10h 29n		10h 33n		10h 37		-
8	47											S
0	15 16	9.97958	0.95407 .95413	$9.98121 \\ .98124$	9.95766 .95771	$9.98277 \\ .98279$	0.96110 .96116	9.98426 .98428	0.96440 .96446	$9.98568 \\ .98570$	0.96757 .96762	60
8	17	.97961 .97964	.95413	.98124	.95777	.98282	.96121	.98428	.96451	.98573	.96767	56 52
12	18	.97966	.95425	.98129	.95783	.98285	.96127	.98433	.96457	.98575	.96772	48
16	19	9.97969	0.95431	9.98132	0.95789	9.98287	0.96133	9.98436	0.96462	9.98577	0.96777	44
20	20	.97972	.95438	.98134	.95795	.98290	.96138	.98438	.96467	.98580	.96782	40
24	21	.97975	.95444	.98137	.95801	.98292	.96144	.98440	.96473	.98582	.96788	36
28	22	.97977	.95450	.98139	.95806	.98295	.96149	.98443	.96478	.98584	.96793	32
32 36	23 24	9.97980	0.95458 .95462	9.98142	0.95812 .95818	9.98297 .98300	0.96155	9.98455	0.96483	9.98587	0.96798	28 24
40	25	.97986	.95168	.98147	.95824	.98302	.96161 .96166	.98448	.96489 .96494	.98589 .98591	.96803 .96808	20
44	26	.97988	.95174	.98150	.95830	.98305	.96172	.98453	.96500	.98593	.96813	16
48	27	9.97991	0.95480	9.98153	0.95836	9.98307	0.96177	9.98455	0.96505	9.98596	0.96818	12
52	28	.97994	.95486	.98155	.95841	.98310	.96183	.98457	.96510	.98598	.96823	8
56	29	9.97997	0.95492	9.98158	0.95847	9.98312	0.96188	9.98460	0.96516	9.98600	0.96829	4
		13h	38m	13h	34m	13h	30m	13h	26^{m}	13h	22m	
s	,	10h 22m	155°	10h 26m	156°	10h 30m	157°	10h 34m	158°	10h 38m	159°	s
ő	30	9.97999	0.95498	9.98161	6.95853	9.98315	0.96194	9.98462	0.96521	9.98603	0.96834	60
4	31	.98002	.95504	.98163	.95859	.98317	.96200	.98465	.96526	.98605	.96839	56
8	33	.98005	.95519	.98166	.95865	.98320	.96205	.98467	.96532	.98607	.96844	52
12	33	.98008	.95516	.98168	.95870	.98322	.96211	.98469	.96537	.98609	.96849	48
16 20	34 35	$9.98010 \\ .98013$	0.95522 .95528	9.98171	0.95876 .95882	9.98325 .98327	0.96216 .96222	9.98472 .98474	0.96542 .96547	9.98612 $.98614$	0.96854 .96859	44
24	36	.98016	.95534	.98176	.95888	.98330	.96227	.98476	.96553	.98616	.96864	40 36
28	37	.98019	.95540	.98179	.95894	.98332	.96223	.98479	.96558	.98619	.96869	32
32	38	9.98021	0.95546	9.98182	0.95899	9.98335	0.96238	9.98481	0.96563	9.98621	0.96874	28
36	39	.98024	.95552	.98184	.95905	.98337	.96244	.98484	.96569	.98623	.96879	24
40	40	.98027	.95558	.98187	.95911	.98340	.96249	.98486	.96574	.98625	.96884	20
44	41	.98030	.95564	.98189	.95917	.98342	.96255	.98488	.96579	.98628	.96889	16
48 52	42 43	9.98032	0.95570 .95576	9.98192	0.95922 .95928	9.98345	0.96260	9.98491	0.96585 .96590	9.98630 $.98632$	0.96894 .96899	12 8
56	44	9.98038	0.95582	98195 9.98197	0.95934	98347 9.98350	.96256 0.96272	9.98496	0.96595	9.98634	0.96905	4
		13h		13h			29m	13h		13h		1
			4 2 2 3				_					
8	4=	10h 23m		10h 27m		10h 31m		10h 35m		10h 39n		S
0	45 46	9.98040	0.95588	9.98200	0.95940	9.98352	0.96277	9.98498 $.98500$	0.96600	9.98637	0.96910	60
4 8	47	.98043 .98046	.95594 .95600	.98202 .98205	.95945 .95951	.98355 .98357	.96283 .96288	.98500	.96606 .96611	.98639	.96915 .96920	56 52
12	48	.98049	.95606	.98208	.95957	.98360	.96294	.98505	.96616	.98643	.96925	48
16	49	9.98051	0.95612	9.98210	0.95962	9.98362	0.96299	9.98507	0.96621	9.98646	0.96930	44
20	50	.98054	.95618	.98213	.95968	.98365	.96305	.98510	.96627	.98648	.96935	40
24	51	.98057	.95624	.98215	.95974	.98367	.96310	.98512	.96632	.98650	.96940	36
28	52	.98059	.95630	.98218	.95980	.98370	.96315	.98514	.96637	.98652	.96945	32
32	53	9.98062	0.95636	9.98221 .98223	0.95985 .95991	9.98372	0.96321 .96326	9.98517	0.96642	9.98655	0.96950 .96955	28
36 40	54 55	.98065 .98067	.95642 .95648	.98223	.95997	.98375 .98377	.96332	.98519 .98521	.96648 .96653	.98657 .98659	.96960	24 20
44	56	.98070	.95654	.98228	.96002	.98379	.96337	.98524	.96653	.98661	.96965	16
48	57	9.98073	0.95660	9.98231	0.96008	9.98382	0.96343	9.98526	0.96663	9.98664	0.96970	12
52	58	.98076	.95665	.98233	.96014	.98384	.96348	.98529	.96669	.98666	.96975	8
56	59	.98078	.95671	.98236	.96020	.98387	.96354	.98531	.96674	.98668	.96980	4
60	60	9.98081	0.95677	9.98239	0.96025	9.98389	0.96359	9.98533	0.96679	9.98670	0.96985	0
00	00	13h		13h		13h		13h		13h		

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TABLE 45.

						Haversi	nes.					
5	,	10h 40m		10h 44n		10h 48n		10h 52n		10h 56m		
			Nat. Hav.		Nat. Hav.		Nat. Hav.		Nat. Hav.	Log. Hav.		8
0	0	9.98670	0.96985	9.98801	0.97276	9.98924	0.97553	9.99041	0.97815	9.99151	0.98063	60
*4 8	1 2	.98673	.96990	.98803	.97281	.98926	.97557	.99043	.97819	.99152	.98067	56
12	3	.98675 .98677	.96995 .97000	.98805 .98807	.97285 .97290	.98928 .98930	.97562 .97566	.99044 .99046	.97824	.99154	.98071 .98075	52
16	4	9.98679	0.97005	9.98809	0.97295	9.98932	0.97571	9.99048	0.97832	99156 9.99158	0.98079	48
20	5	.98681	.97009	.98811	.97300	.98934	.97575	.99050	.97836	.99159	.98083	40
24	6	.98684	.97014	.98813	.97304	.98936	.97580	.99052	.97841	.99161	.98087	36
28	7	.98686	.97019	.98815	.97309	.98938	.97584	.99054	.97845	.99163	.98091	32
32	8	9.98688	0.97024	9.98817	0.97314	9.98940	0.97589	9.99056	0.97849	9.99165	0.98095	28
36	9	.98690	.97029	.98819	.97318	.98942	.97593	.99058	.97853	.99166	.98099	24
40	10	.98692	.97034	.98822	.97323	.98944	.97598	.99059	.97858	.99168	.98103	20
44 48	11 12	.98695	.97039 0.97044	.98824	.97328 0.97332	.98946	.97602	.99061	.97862	.99170	.98107	16
52	13	9.98697 .98699	.97049	9.98826 $.98828$.97337	9.98948 $.98950$	0.97606 .97611	9.99063	0.97866 .97870	9.99172 .99173	0.98111 .98115	12
56	14	9.98701	0.97054	9.98830	0.97342	9.98952	0.97615	9.99067	0.97874	9.99175	0.98119	8 4
•			19m		15m		11m		7m		3m	1 "
	-											-
S	,	10h 41m		10h 45n		10h 49n		10h 53n		10h 57n		S
0	15	9.98703	0.97059	9.98832	0.97347	9.98954	0.97620	9.99069	0.97879	9.99177	0.98123	60
4 8	16 17	.98706	.97064	.98834	.97351	.98956	.97624	.99071	.97883	.99179	.98127	56
8 12	18	.98708 .98710	.97069 .97074	.98836 .98838	.97356 .97361	.98958 .98960	.97629 .97633	.99072 .99074	.97887	.99180	.98131	52
16	19	9.98712	0.97078	9.98840	0.97365	9.98962	0.97637	9.99074	0.97895	.99182 9.99184	.98135 0.98139	48 44
20	20	.98714	.97083	.98842	.97370	.98964	.97642	.99078	.97899	.99186	.98142	40
24	21	.98717	.97088	.98845	.97374	.98966	.97646	.99080	.97904	.99187	.98146	36
28	22	.98719	.97093	.98847	.97379	.98968	.97651	.99082	.97908	.99189	.98150	32
32	23	9.98721	0.97098	9.98849	0.97384	9.98970	0.97655	9.99084	0.97912	9.99191	0.98154	28
36	24	.98723	.97103	.98851	.97388	.98971	.97660	.99085	.97916	.99193	.98158	24
40	25	.98725	.97108	.98853	.97393	.98973	.97664	.99087	.97920	.99194	.98162	20
44 48	26 27	.98728 9.98730	.97113	98855 9.98857	.97398	.98975	.97668	.99089	.97924	.99196	.98166	16
52	28	.98732	0.97117 .97122	.98859	0.97402	9.98977 $.98979$	0.97673 .97677	9.99091	0.97929 .97933	9.99198 $.99200$	0.98170 .98174	12
56	29	9.98734	0.97127	9.98861	0.97412	9.98981	0.97681	9.99095		9.99201	0.98178	8
			18m ₀		14m		10m		6m		2m	7
s	,	10h 42m		10h 46n		10h 50m		10h 54n		10h 58n		-
0	30	9.98736	0.97132	9.98863	0.97416	9.98983	0.97686	9,99096	0.97941	9.99203	0.98182	60
4	31	.98738	.97137	.98865	.97421	.98985	.97690	.99098	.97945	.99205	.98185	56
8	32	.98741	.97142	.98867	.97425	.98987	.97695	.99100	.97949	.99206	.98189	52
12	33	.98743	.97147	.98869	.97430	.98989	.97699	.99102	.97953	.99208	.98193	48
16	34	9.98745	0.97151	9.98871	0.97435	9.98991	0.97703	9.99104	0.97957	9.99210	0.98197	44
20	35	.98747	.97156	.98873	.97439	.98993	97708	.99106	.97962	.99212	.98201	40
24	36	.98749	.97161	.98875	.97444	.98995	.97712	.99107	.97966	.99213	.98205	36
28 32	37 38	.98751	.97166	.98877	.97448	.98997	.97716	.99109	.97970	.99215	.98209	32
36	39	$9.98754 \\ .98756$	0.97171 .97176	$9.98880 \\ .98882$	0.97453 .97458	9.98999	0.97721 .97725	9.99111	0.97974 .97978	9.99217 $.99218$	0.98212	28
40	40	.98758	.97180	.98884	.97462	.99003	.97729	.99115	.97982	.99218	.98216 .98220	24 20
44	41	.98760	.97185	.98886	.97467	.99004	.97734	.99116	.97986	.99222	.98224	16
48	42	9.98762	0.97190	9.98888	0.97471	9.99006	0.97738	9.99118	0.97990	9.99223	0.98228	12
52	43	.98764	.97195	.98890	.97476	.99008	.97742	.99120	.97994	.99225	.98232	8
_56	44	9.98766	0.97200	9.98892	0.97480	9.99010	0.97747	9.99122	0.97998	9.99227	0.98236	4
		13h		13h		13h			5m		1m	
S	,	10h 43m	160°	10h 47m	161°	10h 51n	162°	10h 55m	163°	10h 59n	164°	S
0	45	9.98769	0.97204	9.98894	0.97485	9.99012	0.97751	9.99124	0.98002	9.99229	0.98239	60
4	46		.97209	.98896	.97490	.99014	.97755	.99126	.98007	.99230	.98243	56
8		.98771						00105	.98011	.99232	.98247	52
	47	.98773	.97214	.98898	.97494	.99016	.97760	.99127				
12	48	.98773 .98775	.97214 .97219	.98900	.97499	.99018	.97764	.99129	.98015	.99234	.98251	48
12 16	48 49	.98773 .98775 9.98777	.97214 .97219 0.97224	.98900 9.98902	.97499 0.97503	.99018 9.99020	.97764 0.97768	.99129 9.99131	.98015 0.98019	.99234 9.99235	.98251 0.98255	44
12 16 20	48 49 50	.98773 .98775 9.98777 98779	.97214 .97219 0.97224 .97228	.98900 9.98902 .98904	.97499 0.97503 .97508	.99018 9.99020 .99022	.97764 0.97768 .97773	.99129 9.99131 .99133	.98015 0.98019 .98023	.99234 9.99235 .99237	.98251 0.98255 .98258	44 40
12 16 20 24	48 49 50 51	.98773 .98775 9.98777 98779 .98781	.97214 .97219 0.97224 .97228 .97233	.98900 9.98902 .98904 .98906	.97499 0.97503 .97508 .97512	.99018 9.99020 .99022 .99024	.97764 0.97768 .97773 .97777	.99129 9.99131 .99133 .99135	.98015 0.98019 .98023 .98027	.99234 9.99235 .99237 .99239	.98251 0.98255 .98258 .98262	44 40 36
12 16 20 24 28	48 49 50 51 52	.98773 .98775 9.98777 98779 .98781 .98784	.97214 .97219 0.97224 .97228 .97233 .97238	.98900 9,98902 .98904 .98906 .98908	.97499 0.97503 .97508 .97512 .97517	.99018 9.99020 .99022 .99024 .99026	.97764 0.97768 .97773 .97777	.99129 9.99131 .99133 .99135 .99136	.98015 0.98019 .98023 .98027 .98031	.99234 9.99235 .99237 .99239 .99240	.98251 0.98255 .98258 .98262 .98266	44 40 36 32
12 16 20 24	48 49 50 51	.98773 .98775 9.98777 98779 .98781	.97214 .97219 0.97224 .97228 .97233 .97238 0.97243	.98900 9,98902 .98904 .98906 .98908 9,98910	.97499 0.97503 .97508 .97512 .97517 0.97521	.99018 9.99020 .99022 .99024 .99026 9.99027	.97764 0.97768 .97773 .97777 .97781 0.97785	.99129 9.99131 .99133 .99135 .99136 9.99138	.98015 0.98019 .98023 .98027 .98031 0.98035	.99234 9.99235 .99237 .99239 .99240 9.99242	.98251 0.98255 .98258 .98262 .98266 0.98270	44 40 36 32 28
12 16 20 24 28 32	48 49 50 51 52 53	.98773 .98775 9.98777 98779 .98781 .98784 9.98786	.97214 .97219 0.97224 .97228 .97233 .97238	.98900 9,98902 .98904 .98906 .98908	.97499 0.97503 .97508 .97512 .97517	.99018 9.99020 .99022 .99024 .99026	.97764 0.97768 .97773 .97777 .97781 0.97785 .97790	.99129 9.99131 .99133 .99135 .99136 9.99138 .99140	.98015 0.98019 .98023 .98027 .98031	.99234 9.99235 .99237 .99239 .99240	.98251 0.98255 .98258 .98262 .98266	44 40 36 32 28 24
12 16 20 24 28 32 36 40 44	48 49 50 51 52 53 54 55 56	.98773 .98775 9.98777 98779 .98781 .98784 9.98786 .98788 .98790 .98792	.97214 .97219 0.97224 .97228 .97233 .97238 0.97243 .97247 .97252 .97257	.98900 9.98902 .98904 .98906 .98908 9.98910 .98912 .98914 .98916	.97499 0.97503 .97508 .97512 .97517 0.97521 .97526 .97530 .97535	.99018 9.99020 .99022 .99024 .99026 9.99027 .99029 .99031 .99033	.97764 0.97768 .97773 .97777 .97781 0.97785 .97790 .97794 .97798	.99129 9.99131 .99133 .99135 .99136 9.99138 .99140 .99142 .99143	.98015 0.98019 .98023 .98027 .98031 0.98035 .98039 .98043 .98047	.99234 9.99235 .99237 .99239 .99240 9.99242 .99244 .99245 .99247	.98251 0.98255 .98258 .98262 .98266 0.98270 .98274 .98277 .98281	44 40 36 32 28
12 16 20 24 28 32 36 40 44 48	48 49 50 51 52 53 54 55 56	.98773 .98775 9.98777 98779 .98781 .98784 9.98786 .98786 .98790 .98792 9.98794	.97214 .97219 0.97224 .97228 .97233 .97238 0.97243 .97247 .97252 .97257 0.97262	.98900 9.98902 .98904 .98906 .98908 9.98910 .98912 .98914 .98916 9.98918	.97499 0.97503 .97508 .97512 .97517 0.97521 .97526 .97530 .97535 0.97539	99018 9,99020 99022 99024 99026 9,99027 99029 99031 99033 9,99035	.97764 0.97768 .97773 .97777 .97781 0.97785 .97790 .97794 .97798 0.97802	.99129 9.99131 .99133 .99135 .99136 9.99138 .99140 .99142 .99143 9 .99145	.98015 0.98019 .98023 .98027 .98031 0.98035 .96039 .98043 .98047 0.98051	.99234 9.99235 .99237 .99239 .99240 9.99242 .99244 .99245 .99247 9.99249	.98251 0.98255 .98258 .98262 .98266 0.98270 .98274 .98277 .98281 0.98285	44 40 36 32 28 24 20 16 12
12 16 20 24 28 32 36 40 44 48 52	48 49 50 51 52 53 54 55 56 57	.98773 .98775 9.98777 98779 .98781 .98786 .98786 .98788 .98790 .98792 9.98794 .98796	.97214 .97219 0.97224 .97228 .97233 .97238 0.97243 .97247 .97252 .97257 0.97262 .97266	.98900 9.98902 .98904 .98906 .98908 9.98910 .98912 .98914 .98916 9.98918	.97499 0.97503 .97508 .97512 .97517 0.97521 .97526 .97530 .97535 0.97539	99018 9.99020 .99022 .99024 .99026 9.99027 .99029 .99031 .99033 9.99035 .99037	.97764 0.97768 .97773 .97777 .97781 0.97785 .97790 .97794 .97798 0.97802 .97807	99129 9.99131 .99133 .99135 .99136 9.99138 .99140 .99142 .99143 9.99145 .99147	.98015 0.98019 .98023 .98027 .98031 0.98035 .96039 .98043 .98047 0.98051	.99234 9.99235 .99237 .99239 .99240 9.99242 .99244 .99245 .99247 9.99249 .99250	.98251 0.98255 .98258 .98262 .98266 0.98270 .98274 .98277 .98281 0.98285 .98289	44 40 36 32 28 24 20 16 12 8
12 16 20 24 28 32 36 40 44 48 52 56	48 49 50 51 52 53 54 55 56 57 58 59	.98773 .98775 9.98777 98779 .98781 .98784 9.98786 .98786 .98790 9.98792 9.98794 .98796 .98798	.97214 .97219 0.97224 .97228 .97233 .97243 .97247 .97252 .97257 0.97262 .97266 .97271	.98900 9.98902 .98904 .98906 .98908 9.98910 .98912 .98914 .98916 9.98918 .98920 .98922	.97499 0.97503 .97508 .97512 .97517 0.97521 .97526 .97530 .97535 0.97539 .97544 .97548	99018 9.99020 .99022 .99024 .99026 9.99027 .99029 .99031 .99033 9.99035 .99037 .99039	.97764 0.97768 .97773 .97777 .97781 0.97785 .97790 .97794 .97798 0.97802 .97807 .97811	.99129 9.99131 .99133 .99135 .99136 9.99138 .99140 .99142 .99143 9.99145 .99147	.98015 0.98019 .98023 .98027 .98031 0.98035 .96039 .98043 .98047 0.98051 .98055 .98059	.99234 9.99235 .99237 .99239 .99240 9.99242 .99244 .99245 .99247 9.99249 .99250 .99252	.98251 0.98255 .98258 .98262 .98266 0.98270 .98274 .98277 .98281 0.98285 .98289 .98293	44 40 36 32 28 24 20 16 12 8
12 16 20 24 28 32 36 40 44 48 52	48 49 50 51 52 53 54 55 56 57	.98773 .98775 9.98777 98779 .98781 .98786 .98786 .98788 .98790 .98792 9.98794 .98796	.97214 .97219 0.97224 .97228 .97233 .97233 0.97243 .97247 .97252 .97257 0.97262 .97266 .97271	.98900 9.98902 .98904 .98906 .98908 9.98910 .98912 .98914 .98916 9.98918	.97499 0.97503 .97508 .97512 .97517 0.97521 .97526 .97530 .97535 0.97539 .97544 .97548 0.97553	99018 9.99020 .99022 .99024 .99026 9.99027 .99029 .99031 .99033 9.99035 .99037 .99039 9.99041	.97764 0.97768 .97773 .97773 .97781 0.97785 .97790 .97794 .97798 0.97802 .97807 .97811 0.97815	99129 9.99131 .99133 .99135 .99136 9.99138 .99140 .99142 .99143 9.99145 .99147	.98015 0.98019 .98023 .98027 .98031 0.98035 .96039 .98043 .98047 0.98051 .98055 .98059	.99234 9.99235 .99237 .99239 .99240 9.99242 .99244 .99245 .99247 9.99249 .99250	.98251 0.98255 .98258 .98266 0.98270 .98274 .98277 .98281 0.98285 .98289 .98293	44 40 36 32 28 24 20 16 12 8

						Haversi	nes.					
		11h 0m	165°	11h 4m	166°	11h 8m	167°	11h 12n	168°	11h 16n	169°	1
S			Nat. Hav.		Nat. Hav.	Log. Hav.			Nat. Hav.		Nat. Hav.	
0	0	9.99254	0.98296	9.99350	0.98515	9.99440	0.98719	9.99523	0.98907	9.99599	0.99081	60
8	1 2	.99255 .99257	.98390 .98394	.99352 .99353	.98518	.99441	.98722	.99524 .99526	.98910	.99600 .99602	.99084	56 52
12	3	.99259	.98308	.99355	.98525	.99444	.98728	.99527	.98913	.99603	.99087	48
16	4	9.99260	0.98311	9.99356	0.98529	9.99446	0.98732	9.99528	0.98919	9.99604	0.99092	44
20	5	.99262	.98315	.99358	.98532	.99447	.98735	.99529	.98922	.99605	.99095	40
24	6	.99264	.98319	.99359	.98536	.99448	.98738	.99531	.98925	.99606	.99098	36
28 32	8	0.99265 0.99267	.98323 0.98326	99361 9.99362	.98539 0.98543	0.99450 0.99451	.98741 0.98745	.99532 9.99533	.98928 0.98931	.99608 9.99609	.99101 0.99103	32 28
36	9	.99269	.98330	.99364	.98546	.99453	.98748	.99535	.98934	.99610	.99106	24
40	10	.99270	.98334	.99366	.98550	.99454	.98751	.99536	.98937	.99611	.99109	20
44	11	.99272	.98337	.99367	.98553	.99456	.98754	.99537	.98940	.99612	.99112	16
48 52	12 13	9.99274	0.98341 .98345	9.99369	0.98557 .98560	9.99457 $.99458$	0.98757	9.99539	0.98943	9.99614	0.99114	12
56	14		0.98349	9.99370	0.98564	9.99460	0.98764	9.99540			0.99120	8 4
			59m		55m		51m		47m		43m	
s	,	11h 1m	165°	11h 5m	166°	11h 9m	167°	11h 13n		11h 17n		s
0	15	9.99278	0.98352	9.99373	0.98567	9.99461	0.98767	9.99543	0.98952	9.99617	0.99123	60
4	16	.99280	.98356	.99375	.98571	.99463	.98770	.99544	.98955	.99618	.99125	56
8	17	.99282	.98360	.99376	.98574	.99464	.98774	.99545	.98958	.99620	.99128	52
12 16	18 19	.99283 9.99285	.98363 0.98367	.99378 9.99379	.98577 0.98581	99465 9.99467	.98777 0.98780	.99546 9.99548	.98961 0.98964	99621 9.99622	.99131 0.99133	48 44
20	20	.99287	.98371	.99381	.98584	.99468	.98783	.99549	.98967	.99623	.99136	40
24	21	.99288	.98374	.99382	.98588	.99470	.98786	.99550	.98970	.99624	.99139	36
28	22	.99290	.98378	.99384	.98591	.99471	.98789	.99552	.98973	.99626	.99141	32
32	23 24	9.99291	0.98382 .98385	9.99385	0.98595 .98598	9.99472 $.99474$	0.98793 .98796	9.99553 $.99554$	0.98976 .98979	9.99627 $.99628$	0.99144	28 24
36 40	25	.99295	.98389	.99388	.98601	.99475	.98799	.99555	.98982	.99629	.99149	20
44	26	.99296	.98393	.99390	.98605	.99477	.98802	.99557	.98985	.99630	.99152	16
48	27	9.99298	0.98396	9.99391	0.98608	9.99478	0.98805	9.99558	0.98987	9.99631	0.99155	12
52	28	.99300	.98400	.99393	.98611	.99479	.98809	.99559	.98990	.99633	.99157	8
	29	9.99301 12h	0.98404	9.99394	54m	$\frac{9.99481}{12h}$	0.98812		0.98993		0.99160	4
							SITTLE		10111			
s	,								46m 168°		42m 169°	l s
<u>s</u>		11h 2m 9.99303	165° 0.98407	11h 6m 9.99396	166° 0.98619	$\frac{11h\ 10^{m}}{9.99482}$		$\frac{12^{h}}{9.99562}$		$\frac{11^{h} 18^{n}}{9.99635}$		s 60
0 4	30 31	11h 2m 9.99303 .99304	165° 0.98407 .98411	11h 6m 9.99396 .99397	166° 0.98619 .98622	9.99482 .99484	167° 0.98815 .98818	$ \begin{array}{r} 11^{h} 14^{n} \\ 9.99562 \\ .99563 \end{array} $	168° 0.98996 .98999	$ \begin{array}{r} 11^{h} 18^{n} \\ 9.99635 \\ .99636 \end{array} $	169° 0.99163 .99165	60 56
0 4 8	30 31 32	11h 2m 9.99303 .99304 .99306	165° 0.98407 .98411 .98415	11h 6m 9.99396 .99397 .99399	166° 0.98619 .98622 .98625	9.99482 .99484 .99485	167° 0.98815 .98818 .98821	11h 14n 9.99562 .99563 .99564	168° 0.98996 .98999 .99002	11h 18n 9.99635 .99636 .99637	169° 0.99163 .99165 .99168	60 56 52
0 4 8 12	30 31 32 33	11h 2m 9.99303 .99304 .99306 .99308	165° 0.98407 .98411 .98415 .98418	11h 6m 9.99396 .99397 .99399 .99400	166° 0.98619 .98622 .98625 .98629	9.99482 .99484 .99485 .99486	167° 0.98815 .98818 .98821 .98824	11h 14n 9.99562 .99563 .99564 .99566	168° 0.98996 .98999 .99002 .99005	11h 18n 9.99635 .99636 .99637 .99638	169° 0.99163 .99165 .99168 .99171	60 56 52 48
0 4 8 12 16	30 31 32 33 34	11h 2m 9.99303 .99304 .99306 .99308 9.99309	165° 0.98407 .98411 .98415 .98418 0.98422	11h 6m 9.99396 .99397 .99399 .99400 9.99402	166° 0.98619 .98622 .98625 .98629 0.98632	9.99482 .99484 .99485 .99486 9.99488	167° 0.98815 .98818 .98821 .98824 0.98827	11h 14n 9.99562 .99563 .99564 .99566 9.99567	168° 0.98996 .98999 .99002 .99005 0.99008	11h 18n 9.99635 .99636 .99637 .99638 9.99639	169° 0.99163 .99165 .99168 .99171 0.99173	60 56 52 48 44
0 4 8 12 16 20 24	30 31 32 33	11h 2m 9.99303 .99304 .99306 .99308 9.99309 .99311 .99312	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429	11h 6m 9.99396 .99397 .99399 .99400 9.99402 .99403 .99405	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98639	11h 10 ⁿ 9.99482 .99484 .99485 .99486 9.99488 .99489 .99490	167° 0.98815 .98818 .98821 .98824 0.98827 .98830 .98834	9.99562 .99563 .99564 .99566 9.99567 .99568 .99569	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014	9.99635 .99636 .99637 .99638 9.99639 .99641 .99642	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179	60 56 52 48
0 4 8 12 16 20 24 28	30 31 32 33 34 35 36 37	9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99314	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433	11h 6m 9.99396 .99397 .99399 .99400 9.99402 .99403 .99405 .99406	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98639 .98642	11h 10m 9.99482 .99484 .99485 .99486 9.99488 .99489 .99490 .99492	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98837	9.99562 .99563 .99564 .99566 9.99567 .99568 .99569 .99571	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014	11h 18m 9.99635 .99636 .99637 .99638 9.99639 .99641 .99642 .99643	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179	60 56 52 48 44 40 36 32
0 4 8 12 16 20 24 28 32	30 31 32 33 34 35 36 37 38	9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99314 9.99316	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436	11h 6m 9.99396 .99397 .99399 .99400 9.99402 .99403 .99405 .99406 9.99408	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98639 .98642 0.98646	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99489 .99490 .99492 9.99493	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98837	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99568 .99569 .99571 9.99572	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014 .99016 0.99019	11h 18n 9.99635 .99636 .99637 .99638 9.99639 .99641 .99642 .99643 9.99644	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99181	60 56 52 48 44 40 36 32 28
0 4 8 12 16 20 24 28 32 36	30 31 32 33 34 35 36 37 38 39	9.99303 9.99304 .99306 .99308 9.99309 .99311 .99312 .99316 .99317	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436	11h 6m 9.99396 .99397 .99399 .99400 9.99402 .99403 .99406 9.99408 .99409	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98639 .98642 0.98646	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99489 .99490 .99492 9.99493 .99495	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98837 0.98840 .98843	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99568 .99571 9.99572 .99573	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014 .99016 0.99019	11h 18n 9.99635 .99636 .99637 .99638 9.99639 .99641 .99642 .99643 9.99644 .99645	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99181 0.99184	60 56 52 48 44 40 36 32 28 24
0 4 8 12 16 20 24 28 32	30 31 32 33 34 35 36 37 38	9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99314 9.99316	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436	11h 6m 9.99396 .99397 .99399 .99400 9.99402 .99403 .99405 .99406 9.99408	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98639 .98642 0.98646	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99489 .99490 .99492 9.99493	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98837	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99568 .99569 .99571 9.99572	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014 .99016 0.99019	11h 18n 9.99635 .99636 .99637 .99639 9.99639 .99642 .99643 9.99644 .99645 .99646 .99646	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99181	60 56 52 48 44 40 36 32 28
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99314 9.99316 .99317 .99319 .99320 9.99322	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436 .98440 .98444 .98447 0.98451	11h 6m 9.99396 .99397 .99399 .99400 9.99403 .99405 .99406 9.99408 .99409 .99411 .99412 9.99414	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98639 .98642 0.98646 .98649 .98656	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99489 .99490 .99492 9.99493 .99495 .99497 9.99499	0.98815 .98818 .98821 .98824 0.98827 .98834 .98834 .98834 .98843 .98849 0.98849	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99569 .99571 9.99572 .99573 .99576 9.99576	168° 0.98996 .98999 .99002 .99005 .99011 .99014 .99019 .99022 .99025 .99028 0.99031	11h 18n 9.99635 .99636 .99637 .99638 9.99639 .99642 .99643 9.99644 .99645 .99648 9.99648	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99189 0.99192	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9.99303 9.99304 9.99304 9.99306 9.99309 9.99311 9.99312 9.99316 9.99317 9.99319 9.99320 9.99322	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98436 .98440 .98444 .98447 0.98451	11h 6m 9.99396 .99397 .99399 .99400 9.99402 .99403 .99405 .99406 9.99408 .99409 .99411 .99412 9.99414	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98646 .98649 .98652 .98656 0.98659	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99490 .99493 .99495 .99496 .99497 9.99499 9.99499	0.98815 .98818 .98821 .98821 .98827 .98827 .98830 .98834 .98843 .98849 .98849 0.98852	9.99562 .99563 .99564 .99566 .99567 .99568 .99569 .99572 .99573 .99575 .99576 9.99577	168° 0.98996 .98999 .99002 0.99008 .99011 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031	9.99635 9.99636 9.99637 9.99638 9.99639 9.99641 9.99642 9.99644 9.99645 9.99646 9.99649 9.99649	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99189 .99184 .99189 .99194 0.99194	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	9.99303 9.99304 9.99306 9.99308 9.99309 9.99311 9.99312 9.99316 9.99319 9.99320 9.99322 9.99324 9.99325	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436 .98440 .98444 .98447 0.98454 0.98454	11h 6m 9.99396 .99397 .99399 .99400 9.99403 .99405 .99406 9.99408 .99411 .99412 9.99415 9.99415 9.99417	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98639 .98649 .98646 .98649 .98652 .98656 0.98659	11h 10n 9.99482 .99484 .99485 .99488 .99489 .99490 .99492 9.99493 .99495 .99496 .99499 .99500 9.99501	0.98815 .98818 .98821 .98821 .98824 0.98827 .98830 .98834 .98843 .98840 .98849 0.98849 0.98855 0.98855	11h 14n 9.99562 .99563 .99564 .99566 .99568 .99569 .99572 .99573 .99575 .99576 9.99578 9.99578 9.99578	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031 0.99034	11h 18n 9.99635 .99636 .99637 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99649 9.99650 9.99650	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99189 .99192 0.99194	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	9.99303 9.99304 9.99304 9.99306 9.99309 9.99311 9.99312 9.99316 9.99319 9.99320 9.99322 9.99324 9.99325 12h	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98436 .98440 .98444 .98447 0.98451 .98454 0.98458	11h 6m 9.99396 .99397 .99399 .99400 9.99402 .99403 .99406 9.99408 .99409 .99411 .99412 9.99414 .99415 9.99417 12h	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98639 .98646 .98649 .98652 .98650 .98659 .98662 0.98666 53m	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99499 .99492 9.99493 .99495 .99497 9.99499 9.99500 9.99501 12h	0.98815 .98818 .98821 .98821 .98827 .98830 .98837 .98830 .98843 .98840 .98849 0.98852 .98855 0.98858	11h 14n 9.99562 .99563 .99564 .99566 .99568 .99569 .99571 9.99572 .99573 .99575 .99578 9.99578 9.99578 9.99580 12h	168° 0.98996 .98999 .99002 0.99008 .99011 .99014 .99019 0.99022 .99025 .99028 0.99031 .99034 0.99036 45m	11h 18n 9.99635 .99636 .99639 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99648 9.99649 9.99650 9.99651 12h	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99189 .99184 .99186 .99189 .99194 .99194	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43	9.99303 9.99304 9.99306 9.99308 9.99309 9.99311 9.99312 9.99316 9.99319 9.99320 9.99322 9.99324 9.99325	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436 .98440 .98444 .98447 0.98454 0.98454	11h 6m 9.99396 .99397 .99399 .99400 9.99403 .99405 .99406 9.99408 .99411 .99412 9.99415 9.99415 9.99417	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98639 .98649 .98646 .98649 .98652 .98656 0.98659	11h 10n 9.99482 .99484 .99485 .99488 .99489 .99490 .99492 9.99493 .99495 .99496 .99499 .99500 9.99501	0.98815 .98818 .98821 .98821 .98827 .98830 .98837 .98830 .98843 .98840 .98849 0.98852 .98855 0.98858	11h 14n 9.99562 .99563 .99564 .99566 .99568 .99569 .99572 .99573 .99575 .99576 9.99578 9.99578 9.99578	168° 0.98996 .98999 .99002 0.99008 .99011 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031 .99034 0.99036	11h 18n 9.99635 .99636 .99637 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99649 9.99650 9.99650	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99189 .99184 .99186 .99189 .99194 .99194	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	11h 2m 9.99303 .99304 .99306 .99308 9.99309 .99311 .99314 9.99316 .99319 .99320 9.99322 .99324 9.99325 12h 11h 3m 9.99328	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436 .98440 .98444 .98447 0.98451 .98458 577m 165° 0.98462 .98465	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99405 .99406 9.99408 .99409 .99411 .99412 9.99414 .99415 9.99418 .99420	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98649 .98642 0.98649 .98652 .98656 0.98659 .98666 53m 166° 0.98669 .98672	11h 10n 9.99482 .99484 .99485 .99488 9.99489 .99490 .99492 9.99495 .99496 .99497 9.99499 .99500 12h 11h 11n 9.99503 .99504	0.98815 .98818 .98821 .98821 .98827 .98830 .98834 .98837 0.98840 .98849 0.98852 .98855 0.98858 49m 0.98862 .98862	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99569 .99571 9.99572 .99573 .99576 9.99577 .99576 9.99570 9.99580 12h 11h 15n 9.99581 .99582	168° 0.98996 .98999 .99002 .99008 0.99011 .99014 .99019 .99022 .99025 .99028 0.99031 .99034 0.99039 45m	11h 18n 9.99635 .99636 .99637 .99639 .99641 .99642 .99643 9.99644 .99646 .99648 9.99649 .99650 11h 19n 9.99652 .99653	169° 0.99163 .99165 .99168 .99171 0.99176 .99179 .99181 0.99184 .99186 .99189 .99192 0.99194 .99197 0.99199 41m 169° 0.99202 .99205	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	11h 2m 9.99303 .99304 .99304 .99308 9.99309 .99311 .99316 .99317 .99319 .99320 9.99322 .99324 9.99325 12h 11h 3m 9.99327 .99328 .99330	165° 0.98407 .98411 .98418 0.98422 .98426 .98429 .98433 0.98436 .98440 .98444 0.98451 .98454 0.98458 57m 165° 0.98462 .98462	11h 6m 9.99396 .99397 .99399 .99400 9.99403 .99405 .99406 9.99408 .99411 .99412 9.99414 .99415 9.99417 12h 71h 7m 9.99418 .99420 .99421	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98639 .98642 0.98646 .98652 .98656 0.98659 .98662 0.98666 53m 166° 0.98669 .98672 .98672	11h 10n 9.99482 .99484 .99485 .99488 9.99488 .99490 .99492 9.99493 .99496 .99497 9.99500 9.99501 12h 11h 11n 9.99503 .99504 .99505	0.98815 .98818 .98821 .98821 .98827 .98830 .98834 .98837 0.98840 .98849 0.98852 .98858 .98858 49m 167° 0.98862 .98865 .98865	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99569 .99571 9.99572 .99573 .99576 9.99577 .99578 9.99580 12h 11h 15n 9.99582 .99582 .99583	168° 0.98996 .98999 .99002 .99008 .99011 .99014 .99016 0.99019 .99025 .99025 .99028 0.99031 .99039 2 168° 0.99039 .99042 .99045	11h 18n 9.99635 .99636 .99637 .99639 9.99639 .99642 .99643 9.99644 .99646 .99648 9.99649 .99650 9.99651 12h 11h 19n 9.99652 .99653 .99654	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99184 .99184 .99189 .99192 0.99194 .99197 0.99199 41m 169° 0.99202 .99205 .99207	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 56 56 56 56 56 52 52 52 52 52 52 52 52
0 4 8 12 16 20 22 36 40 44 48 52 56 8 12	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48	9.99303 9.99304 9.99304 9.99306 9.99309 9.99311 9.99314 9.99316 9.99319 9.99329 9.99324 9.99325 12h 11h 3m 9.99327 9.99328 9.99328 9.99330 9.99330	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98436 .98440 .98444 .98447 0.98451 .98454 0.98458 57m 165° 0.98462 .98469 .98469	11h 6m 9.99396 .99397 .99399 .99400 .99403 .99405 .99406 9.99408 .99411 .99412 9.99415 9.99417 12h 11h 7m 9.99418 .99420 .99421 .99422	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98639 .98646 .98649 .98652 .98656 0.98665 53m 166° 0.98666 53m 166° 0.98676 .98672	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99499 9.99492 9.99493 .99495 .99496 .99500 9.99501 12h 11h 11n 9.99503 .99504 .99505 .99507	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98843 .98849 0.98852 .98855 0.98852 .98858 49m 2 167° 0.98862 .98863 .98868	11h 14n 9.99562 .99563 .99564 .99566 .99568 .99569 .99572 .99573 .99575 .99576 9.99577 .99578 9.99578 9.99580 12h 11h 15n 9.99582 .99582 .99583 .99583	168° 0.98996 .98999 .99002 0.99008 .99011 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031 .99034 0.99039 .99042 .99042 .99042	11h 18n 9.99635 .99636 .99639 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99648 9.99650 9.99651 12h 11h 19n 9.99652 .99653 .99653 .99654 .99655	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99189 .99194 .99197 0.99194 199197 0.99202 .99202 .99207 .99210	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 8 12 16 20 24 28 32 36 40 44 48 52 56 8 0 4 8 8 12 16	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	11h 2m 9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99316 .99317 .99319 .99320 9.99322 .99324 9.99325 12h 11h 3m 9.99330 9.99330 9.99331 9.99331 9.99333	165° 0.98407 .98411 .98415 .98415 .98422 .98426 .98429 .98433 0.98433 0.98444 .98444 .98447 0.98454 0.98458 57m 165° 0.98462 .98462 .98465 .98469 .98472	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99406 9.99408 .99411 .99412 9.99417 12h 711h 7m 9.99418 .99420 .99421 .99422 9.99424	166° 0.98619 .98622 .98625 .98625 .98632 .98635 .98639 .98649 .98649 .98652 .98656 0.98669 .98666 53m 166° 0.98669 .98672 .98679 0.98682	11h 10n 9.99482 .99484 .99485 .99488 9.99489 .99490 .99493 .99495 .99496 .99497 9.99500 9.99501 12h 11h 11n 9.99503 .99504 .99505 .99507 9.99508	0.98815 .98818 .98821 .98821 .98824 0.98827 .98830 .98834 .98843 .98849 0.98852 .98855 0.98858 49m 2 167° 0.98862 .98865 .98867 .98871 0.98874	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99572 .99573 .99575 .99576 9.99576 9.99578 9.99578 9.99580 12h 11h 15n 9.99581 .99582 .99583 .99584 9.99584 9.99584 9.99584	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014 .99019 .99022 .99025 .99031 0.99034 0.99039 .99042 .99045 0.99039	11h 18n 9.99635 .99636 .99637 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99649 9.99650 9.99651 12h 11h 19n 9.99653 .99653 .99655 9.99657	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99192 0.99194 -99197 0.99199 41m 10.99202 .99202 .99207 .99210 0.99212	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 22 36 40 44 48 52 56 8 12	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48	9.99303 9.99304 9.99304 9.99306 9.99309 9.99311 9.99314 9.99316 9.99319 9.99329 9.99324 9.99325 12h 11h 3m 9.99327 9.99328 9.99328 9.99330 9.99330	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98436 .98440 .98444 .98447 0.98451 .98454 0.98458 57m 165° 0.98462 .98469 .98469	11h 6m 9.99396 .99397 .99399 .99400 .99403 .99405 .99406 9.99408 .99411 .99412 9.99415 9.99417 12h 11h 7m 9.99418 .99420 .99421 .99422	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98639 .98642 0.98649 .98652 .98656 0.98659 .98666 53m 166° 0.98669 .98672 .98672 .98672 .98678 .98686 .98689	11h 10n 9.99482 .99484 .99485 .99486 9.99488 .99499 9.99492 9.99493 .99495 .99496 .99500 9.99501 12h 11h 11n 9.99503 .99504 .99505 .99507	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98843 .98849 0.98852 .98855 0.98852 .98858 49m 2 167° 0.98862 .98863 .98868	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99569 .99571 9.99572 .99573 .99576 9.99576 9.99577 .99578 9.99580 12h 11h 15n 9.99581 .99582 .99583 .99584 9.99586 .99587 .99588	168° 0.98996 .98999 .99002 0.99008 .99011 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031 .99034 0.99039 .99042 .99042 .99042	11h 18n 9.99635 .99636 .99639 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99648 9.99650 9.99651 12h 11h 19n 9.99652 .99653 .99653 .99654 .99655	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99189 .99194 .99197 0.99194 199197 0.99202 .99202 .99207 .99210	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 4 4 4 4 4 4 4 4 4 4 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 0 4 8 12 16 20 24 28 28 28 28 28 28 28 28 28 28 28 28 28	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 47 48 49 50 51 52	11h 2m 9.99303 .99304 .99306 .99308 9.99312 .99312 .99316 .99317 .99319 .99320 9.99322 .99324 9.99325 12h 11h 3m 9.99327 .99328 .99330 .99331 9.99333 .99333 .99336 .99338	165° 0.98407 .98411 .98418 0.98422 .98426 .98429 .98436 .98440 .98444 .98447 0.98451 .98454 0.98458 57m 165° 0.98462 .98469 .98472 0.98479	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99405 .99406 9.99408 .99411 .99415 9.99417 12h 11h 7m 9.99418 .99420 .99421 .99422 9.99424 .99425 .99425 .99427 .99429	166° 0.98619 .98622 .98625 .98632 .98635 .98639 .98646 .98649 .98652 .98659 .98662 0.98666 53m 166° 0.98669 .98672 .98672 .98672 .98676 .98689 .98689	11h 10n 9.99482 .99484 .99485 9.99489 .99490 9.99492 9.99493 .99495 .99496 .99501 12h 11h 11n 9.99503 .99504 .99505 .99507 9.99508 .99510 .99510 .99511 .99512	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98843 .98849 0.98852 .98855 0.98852 .98855 0.98858 49m 2 167° 0.98862 .98862 .98871 0.98874 .98871 0.98874 .98871 0.98883	11h 14n 9.99562 .99563 .99564 .99566 .99568 .99569 .99572 .99573 .99575 .99576 9.99577 .99578 9.99580 12h 11h 15n 9.99582 .99582 .99583 .99584 9.99584 9.99586 .99588 .99588 .99588 .99588	168° 0.98996 .98999 .99002 0.99014 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031 .99034 0.99036 45m 2 168° 0.99039 .99042 .99045 .99045 .99045 .99045 .99045	11h 18m 9.99635 .99636 .99639 .99639 .99641 .99642 .99643 9.99645 .99646 .99645 9.99650 9.99651 12h 11h 19m 9.99652 .99653 .99654 .99655 9.99657 99658 .99659	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99189 .99194 2 0.99194 2 0.99202 .99202 .99202 .99210 0.99212 .99215 .99217 .99220	60 56 52 48 44 40 36 32 28 22 20 16 12 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 32 32 36 36 40 40 44 48 48 52 52 56 26 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 47 48 49 50 51 52 53	11h 2m 9.99303 .99304 .99306 .99308 9.99309 9.99311 .99312 .99316 .99317 .99319 .99322 .99324 9.99325 12h 11h 3m 9.99327 .99328 .99331 9.99333 .99333 .99336 .99338 .99338 .99339	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98436 .98440 .98444 .98447 0.98454 0.98458 57m 165° 0.98462 .98469 .98472 0.98476 .98479 .98479 .98487 0.98499	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99406 9.99408 .99411 .99412 9.99415 9.99417 12h 11h 7m 9.99418 .99420 .99421 .99422 9.99424 .99425 .99429 9.99430	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98639 .98646 .98649 .98652 .98656 0.98669 0.98669 0.98669 .98679 0.98682 .98689 .98689 0.98692	11h 10n 9.99482 .99484 .99485 .99488 .99489 .99490 .99493 .99495 .99496 .99497 9.99500 9.99501 11h 11n 9.99503 .99504 .99505 .99507 9.99508 .99510 .99512 9.99512 9.99512	0.98815 .98818 .98821 .98821 .98824 0.98827 .98830 .98834 .98843 .98846 .98849 0.98855 0.98855 0.98862 .98862 .98862 .98862 .98863 .98871 0.98874 .98877 .98883 .98883	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99572 .99573 .99575 .99576 9.99577 .99578 9.99578 9.99580 12h 11h 15n 9.99582 .99583 .99584 9.99586 .99587 .99587 .99588 .99589 .99589 .99589 .99589	168° 0.98996 .98999 .99002 0.99008 .99011 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031 0.99034 0.99036 45m 2 168° 0.99039 .99045 .99045 .99045 0.99050 .99050 0.99062	11h 18n 9.99635 .99636 .99637 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99649 .99650 9.99651 12h 11h 19n 9.99652 .99653 .99655 9.99657 9.9658 .99659 9.9660 9.99661	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99189 .99192 0.99194 2 169° 0.99202 .99202 .99202 .99215 .99215 .99220 0.99223	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 4 5 6 5 7 7 8 4 4 4 4 6 5 7 7 8 7 7 8 7 8 8 8 8 8 8 8 8 8 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 56 20 24 28 32 36 36 40 41 42 43 44 44 44 48 48 49 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54	11h 2m 9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99316 .99319 .99320 9.99322 .99324 9.99325 12h 11h 3m 9.99330 9.99331 9.99333 .99335 .99336 .99336 .99338 .99338 .99338 .99338 .99339 .99341	165° 0.98407 .98411 .98415 .98418 0.98422 .98426 .98429 .98433 0.98436 .98440 .98444 .98454 0.98454 0.98458 57m 165° 0.98462 .98465 .98469 .98472 0.98472 0.98472 0.98479 .98483 .98487 0.98499	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99406 9.99408 .99411 .99412 9.99417 12h 711h 7m 9.99418 .99420 .99421 .99422 9.99424 .99425 .99427 .99427 .99430 .99430 .99430 .99431	166° 0.98619 .98622 .98625 .98635 .98635 .98639 .98646 .98649 .98652 .98656 0.98666 53m 166° 0.98669 .98672 .98679 0.98682 .98689 .98699	11h 10m 9.99482 .99484 .99485 .99488 9.99489 .99490 .99492 9.99493 .99496 .99497 9.99500 9.99501 11h 11m 9.99503 .99504 .99505 9.99506 .99511 .99511 .99512 9.99514	0.98815 .98818 .98821 .98821 .98824 0.98827 .98830 .98834 .98840 .98849 0.98855 0.98858 49m 2 167° 0.98868 .98871 0.98874 .98877 .98880 .98874 .98878	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99571 9.99573 .99576 9.99576 9.99578 9.99578 9.99580 12h 11h 15n 9.9583 .99583 .99584 9.99584 9.99586 .99587 .99588 .99587 .99588 .99589 9.99591 .99592	168° 0.98996 .98999 .99002 .99008 0.99018 .99014 .99019 .99022 .99025 .99038 0.99031 0.99039 .99042 .99045 .99045 .99045 .99045 .99045 .99045 .99045 .99045 .99045	11h 18n 9.99635 .99636 .99637 .99639 9.99641 .99642 .99644 .99645 .99646 .99650 9.99650 9.99653 .99653 .99655 9.99657 99658 .99659 .99660 9.99661 .99662	169° 0.99163 .99165 .99168 .99171 0.99179 .99176 .99181 0.99184 .99189 .99192 0.99194 2 169° 0.99202 .99205 .99207 .99210 0.99212 .99215 .99217 .99220 0.99223 .99223	S GO S6 S2 48 44 40 36 52 8 4 40 56 52 48 44 40 36 32 8 28 28 24 24 24 26 32 28 24 24 24 36 36 36 36 36 36 36 3
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 20 24 28 32 32 32 36 40 40 44 48 52 56 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 54 55	11h 2m 9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99314 9.99319 .99320 9.99325 12h 11h 3m 9.99327 .99328 .99330 .99331 9.99336 .99338 9.99339 .99334 1.99342	165° 0.98407 .98411 .98418 0.98422 .98426 .98429 .98433 0.98436 .98440 .98444 .98447 0.98451 .98454 0.98458 57m 165° 0.98462 .98469 .98479 .98479 .98483 .98487 0.98494 .98497	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99405 .99408 .99409 .99411 .99412 9.99414 .99415 .99417 12h 7m 9.99420 .99421 .99422 9.99424 .99425 .99427 .99429 9.99430 .99431 .99433	166° 0.98619 .98622 .98625 .98629 0.98632 .98635 .98649 .98642 0.98656 0.98659 .98656 0.98666 53m 166° 0.98679 .98672 .98676 .98679 0.98682 .98682 .98682 .98689 .98692 0.98699	11h 10n 9.99482 .99484 .99485 .99488 9.99489 .99490 .99492 9.99493 .99496 .99497 9.99500 12h 11h 11n 9.99503 .99504 .99505 .99507 9.99508 .99511 .99512 9.99514 .99515 .99516	0.98815 .98818 .98821 .98821 .98821 .98827 .98830 .98834 .98837 0.98849 0.98852 .98858 49m 0.98858 49m 0.98862 .98865 .98863 .98871 0.98874 .98877 .98874 .98886 .98888 .98888 .98888	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99572 .99573 .99576 9.99576 9.99576 9.99576 9.99576 9.99580 12h 11h 15n 9.99581 .99582 .99583 .99583 .99584 9.99586 .99587 .99588 .99588 .99589 9.99592 .99592	168° 0.98996 .98999 .99002 .99008 0.99014 .99014 .99019 .99022 .99025 .99028 0.99031 .99034 0.99036 45m 2 168° 0.99039 .99042 .99048 0.99051 .99048 0.99051 .99053 .99056 .99059 0.99065	11h 18n 9.99635 .99636 .99637 .99639 .99641 .99642 .99643 9.99644 .99645 .99646 .99648 9.99650 9.99651 11h 19n 9.99652 .99653 .99655 9.99657 9.99659 9.99660 9.99661 .99661 .99662 .99663	169° 0.99163 .99165 .99168 .99171 0.99179 .99181 0.99184 .99189 .99192 0.99194 10.99202 .99205 .99207 .99210 0.99212 .99215 .99217 .99220 0.99223 .99228	\$\\ 60\\ 56\\ 52\\ 48\\ 44\\ 40\\ 36\\ 52\\ 8\\ 4\\ 20\\ 16\\ 12\\ 8\\ 4\\ 40\\ 36\\ 56\\ 52\\ 48\\ 44\\ 40\\ 36\\ 32\\ 28\\ 42\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 28\\ 24\\ 20\\ 36\\ 32\\ 32\\ 32\\ 32\\ 32\\ 32\\ 32
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 0 4 8 12 16 20 24 48 8 22 56 20 40 44 48 8 20 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 40 41 42 44 44 45 46 47 48 49 50 50 50 50 50 50 50 50 50 50 50 50 50	11h 2m 9.99303 .99304 .99306 .99308 9.99309 .99311 .99312 .99316 .99319 .99320 9.99322 .99324 9.99325 12h 11h 3m 9.99330 9.99331 9.99333 .99335 .99336 .99336 .99338 .99338 .99338 .99338 .99339 .99341	165° 0.98407 .98411 .98415 .98415 .98422 .98426 .98429 .98433 0.98436 .98444 .98447 0.98454 0.98458 57m 165° 0.98462 .98469 .98472 0.98476 .98479 .98479 .98487 0.98490 .98491	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99405 .99406 9.99408 .99411 .99412 9.99415 9.99417 12h 11h 7m 9.99420 .99421 .99422 9.99424 .99425 .99427 .99429 9.99430 .99431 .99431 .99436	166° 0.98619 .98622 .98625 .98632 .98632 .98635 .98639 .98649 .98652 .98656 0.98659 .98666 53m 166° 0.98669 .98679 0.98682 .98689 .98692 0.98699 .98699 .98699	11h 10n 9.99482 .99484 .99485 .99488 .99489 .99490 .99492 9.99493 .99496 .99497 9.99500 9.99501 12h 11h 11n 9.99503 .99504 .99505 .99507 9.99508 .99510 .99512 9.99514 .99515 .99518 .99518 .99518 .99518	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98843 .98849 0.98852 .98852 0.98852 0.98852 .98853 0.98852 .98853 0.98858 49m 0.98862 .98863 .98871 0.98874 .98877 .98873 0.98883 0.98883 0.98883 0.98883 0.98883 0.98883	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99571 9.99573 .99576 9.99576 9.99578 9.99578 9.99580 12h 11h 15n 9.9583 .99583 .99584 9.99584 9.99586 .99587 .99588 .99587 .99588 .99589 9.99591 .99592	168° 0.98996 .98999 .99002 0.99008 .99011 .99014 .99016 0.99019 .99022 .99025 .99028 0.99031 0.99034 0.99036 45m 2 168° 0.99039 .99045 .99045 .99048 0.99050 0.99050 0.99067 .99067 .99067	11h 18n 9.99635 .99636 .99637 .99639 9.99641 .99642 .99644 .99645 .99646 .99650 9.99651 12h 11h 19n 9.99652 .99653 .99655 9.99657 9.9658 .99659 .99660 9.99661 .99662	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99189 .99192 0.99194 2 169° 0.99202 .99202 .99203 .99215 .99210 0.99212 .99215 .99210 0.99223 .99225 .99228 .99230 0.99233	S GO S6 S2 48 44 40 36 52 8 4 40 56 52 48 44 40 36 32 8 28 28 24 24 24 26 32 28 24 24 24 36 36 36 36 36 36 36 3
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 32 32 36 40 44 44 48 28 32 36 40 44 44 44 44 44 44 44 44 44 44 44 44	30 31 32 33 34 35 36 37 38 40 41 42 44 44 45 46 47 50 51 55 55 56 57 57 58	11h 2m 9.99303 .99304 .99306 9.99308 9.99311 .99312 .99316 .99317 .99319 .99320 9.99325 12h 11h 3m 9.99327 .99328 .99327 .99338 .99333 .99335 .99336 .99339 .99341 .99342 .99344 9.99345 .99347	165° 0.98407 .98411 .98415 .98415 .98426 .98429 .98433 0.98433 0.98444 .98447 0.98454 0.98458 57m 165° 0.98462 .98469 .98472 0.98472 0.98479 .98479 .98487 0.98487 0.98489 .98491 .98501	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99405 .99406 9.99408 .99411 .99412 9.99417 12h 71h 7m 9.99418 .99420 .99421 .99422 9.99424 .99425 .99427 .99429 9.99430 .99431 .99433 .99436 .99437	166° 0.98619 .98622 .98625 .98625 .98632 .98635 .98639 .98649 .98652 .98656 0.98659 .98662 0.98669 .98672 .98679 0.98689 .98689 .98692 0.98690 .98692	11h 10n 9.99482 .99484 .99485 9.99488 9.99489 .99490 .99493 .99496 .99497 9.99500 12h 11h 11n 9.99503 .99504 .99504 .99505 .99510 .99511 .99512 9.99514 .99515 .99516 .99516 .99519 .99516 .99519 .99520	0.98815 .98818 .98821 .98821 .98824 0.98827 .98830 .98834 .98843 .98846 .98849 0.98855 0.98858 49m 2 167° 0.98862 .98865 .98871 0.98874 .98877 .98880 .98889 .98895 .98895 .98895	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99572 .99573 .99575 .99576 9.99576 9.99578 9.99578 9.99580 12h 11h 15n 9.99581 .99582 .99583 .99584 9.99586 .99587 .99588 9.99589 9.99591 .99592 .99596 .99597	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014 .99012 .99022 .99025 .99031 0.99034 0.99036 45m 2 168° 0.99039 .99048 0.99051 .99053 .99056 .99050 .99065 .99065 .99067 .99073 0.99073	11h 18m 9.99635 .99636 .99637 .99638 9.99639 .99641 .99642 .99644 .99645 .99646 .99650 9.99651 12h 11h 19m 9.99652 .99653 .99655 9.99657 .99658 .99659 .99660 9.99661 .99662 .99663 .99666 9.99667	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99199 0.99194 100 0.99202 0.99202 0.99202 0.99210 0.99212 0.99212 0.99215 0.99215 0.99223 0.99223 0.99223 0.99233 0.99233	S GO S6 S2 S6 S6 S6 S6 S6 S6
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 32 32 36 40 44 48 48 52 56 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48 50 51 55 55 56 57 58 59	11h 2m 9.99303 9.99304 9.99308 9.99309 9.99311 9.99314 9.99319 9.99320 9.99322 9.99324 9.99325 12h 11h 3m 9.99330 9.99331 9.99333 9.99333 9.99336 9.99338 9.99341 9.99342 9.99345 9.99347 9.99347 9.99349	165° 0.98407 .98411 .98415 .98418 0.98429 .98426 .98429 .98433 0.98436 .98440 .98447 0.98451 0.98458 57m 165° 0.98462 .98465 .98469 .98472 0.98472 0.98472 0.98479 .98483 .98483 .98487 0.98494 .98501 0.98504	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99406 9.99408 .99409 .99411 .99412 9.99417 12h 7 11h 7m 9.99418 .99420 .99421 .99422 9.99424 .99425 .99427 .99429 9.99430 .99430 .99430 .99430 .99430 .99431 .99436 .99436 .99437 .99438	166° 0.98619 .98622 .98625 .98635 .98639 .98649 .98649 .98652 .98656 0.98660 53m 166° 0.98669 .98672 .98679 0.98682 .98689 .98699 .98692 .98690 .98705	11h 10m 9.99482 .99484 .99485 .99488 9.99489 .99490 .99492 9.99496 .99497 9.99490 9.99501 12h 11h 11m 9.99503 .99504 .99504 .99505 9.99501 .99511 .99511 .99516 .99518 9.99518 9.99520 .99522	0.98815 .98818 .98821 .98821 .98824 0.98827 .98830 .98843 .98843 .98846 .98849 0.98852 0.98858 49*** 0.98862 .98865 .98865 .98865 .98863 .98874 0.98874 0.98874 0.98872 0.98883 0.98883 0.98883 0.98883	11h 14n 9.99562 .99563 .99564 .99566 9.99567 .99571 9.99573 .99576 9.99576 9.99576 9.99576 9.99578 12h 11h 15n 9.9582 .99583 .99584 9.99588 9.99589 9.99591 .99592 .99593 .99594 9.99596 .99597 .99598	168° 0.98996 .98999 .99002 .99008 0.99008 .99011 .99014 .99016 0.99039 0.99034 0.99036 45m 2 168° 0.99039 .99045 .99045 .99046 0.99051 .99053 .99056 .99059 0.99062 .99065 .99067 .99073	11h 18m 9.99635 .99636 .99637 .99638 9.99639 .99641 .99642 .99643 9.99646 .99646 .99648 9.99650 9.99651 12h 11h 19m 9.99652 .99653 .99655 9.99655 9.99655 9.99656 9.99661 .99662 .99663 .99664 9.99666 .99666 .99666 .99666	169° 0.99163 .99165 .99168 .99171 0.99179 .99176 .99179 .99184 .99189 .99192 0.99194 2 169° 0.99202 .99205 .99207 .99210 0.99212 .99215 .99217 .99220 0.99223 .99228 .99233 .99235 .99238	S GO S6 S2 48 44 40 36 52 8 4 40 56 52 48 44 40 36 32 32 32 32 32 32 32
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 32 32 36 40 44 44 48 28 32 36 40 44 44 44 44 44 44 44 44 44 44 44 44	30 31 32 33 34 35 36 37 38 40 41 42 44 44 45 46 47 50 51 55 55 56 57 57 58	11h 2m 9.99303 .99304 .99306 9.99308 9.99311 .99312 .99316 .99317 .99319 .99320 9.99325 12h 11h 3m 9.99327 .99328 .99327 .99338 .99333 .99335 .99336 .99339 .99341 .99342 .99344 9.99345 .99347	165° 0.98407 .98411 .98418 0.98422 .98426 .98429 .98436 .98440 .98444 .98447 .98451 .98454 0.98458 57m 165° 0.98465 .98469 .98472 0.98476 0.98476 .98479 .98483 .98487 0.98494 .98494 .98497 .98508	11h 6m 9.99396 .99397 .99399 .99400 9.99405 .99405 .99406 9.99408 .99411 .99412 9.99417 12h 71h 7m 9.99418 .99420 .99421 .99422 9.99424 .99425 .99427 .99429 9.99430 .99431 .99433 .99436 .99437	166° 0.98619 .98622 .98625 .98632 .98635 .98639 .98646 .98649 .98652 .98659 .98666 53m 166° 0.98666 53m 0.98669 .98672 .98672 .98678 .98679 0.98682 .98692 .98699 .98699 .98715 0.98719	11h 10n 9.99482 .99484 .99485 9.99488 9.99489 .99490 .99493 .99496 .99497 9.99500 12h 11h 11n 9.99503 .99504 .99504 .99505 .99510 .99511 .99512 9.99514 .99515 .99516 .99516 .99519 .99516 .99519 .99520	0.98815 .98818 .98821 .98824 0.98827 .98830 .98834 .98834 .98849 .98849 .98852 .98852 0.98852 .98853 0.98858 .98871 0.98862 .98863 .98871 0.98874 0.98862 .98865 .98863 .98871 0.98874 .98874 .98874 .98874 .98875 .98868 .98871 .98878 .98886 .98871 .98886 .98871 .98886 .98871 .98888 .98892 .98889 .98892 .98892 .98892 .98892 .98892 .98893 .98997	11h 14n 9.99562 .99563 .99564 .99568 .99568 .99569 .99572 .99573 .99575 .99578 9.99577 9.99580 12h 11h 15n 9.99582 .99583 .99584 9.99584 9.99589 9.99591 .99593 .99594 9.99598 9.99599	168° 0.98996 .98999 .99002 .99005 0.99008 .99011 .99014 .99012 .99022 .99025 .99031 0.99034 0.99036 45m 2 168° 0.99039 .99048 0.99051 .99053 .99056 .99050 .99065 .99065 .99067 .99073 0.99073	11h 18m 9.99635 .99636 .99637 .99638 9.99639 .99641 .99642 .99643 9.99646 .99646 .99648 9.99650 9.99651 12h 11h 19m 9.99652 .99653 .99655 9.99655 9.99655 9.99656 9.99661 .99662 .99663 .99664 9.99666 .99666 .99666 .99666	169° 0.99163 .99165 .99168 .99171 0.99173 .99176 .99179 .99184 .99186 .99189 .99192 0.99194 2 169° 0.99202 .99202 .99202 .99210 0.99212 .99217 .99220 0.99223 .99225 .99223 .99228 .99238 0.99238 0.99238	S GO S6 S2 S6 S6 S6 S6 S6 S6

TABLE 45.

1		11h 20m	170°	11h 24m	171°	11h 28m	172°	11h 32m	173°	11h 36m	174°	
S		Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	Log. Hav.	Nat. Hav.	S
0	0	9.99669	0.99240	9.99732	0.99384	9.99788	0.99513	9.99838	0.99627	9.99881	0.99726	60
'4	1	.99670	.99243	.99733	.99387	.99789	.99515	.99839	.99629	.99882	.99728	56
8	2	.99671	.99245	.99734	.99389	.99790	.99517	.99839	.99631	.99882	.99729	52
12	3	.99672	.99248	.99735	.99391	.99791	.99519	.99840	.99633	.99883	.99731	48
16	4	9.99673	0.99250	9.99736	0.99393	9.99792	0.99521	9.99841	0.99634	9.99884	0.99732	44
20	5	.99674	.99253	.99737	.99396	.99793	.99523	.99842	.99636	.99884	.99734	40
24	6	.99675	.99255	.99738	.99398	.99793	.99525	.99842	.99638	.99885	.99735	36
28	7	.99677	.99258	.99739	.99400	.99794	.99527	.99843	.99640	.99885	.99737	32
32	8	9,99678	0.99260	9.99740	0.99402	9.99795	0.99529	9.99844	0.99641	9.99886	0.99738	28
36	9	.99679	.99263	.99741	.99405	.99796	.99531	.99845	.99643	.99887	.99740	24
40	10	.99680	.99265	.99742	.99407	.99797	.99533	.99845	.99645	.99887	.99741	20
44	11	.99681	.99268	.99743	.99409	.99798	.99535	.99846	.99647	.99888	.99743	16
48	12	9.99682	0.99270	9.99744	0.99411	9.99799	0.99537	9.99847	0.99648	9.99889	0.99744	12
52	13	.99683	.99273	.99745	.99414	.99800	.99539	.99848	.99650	.99889	.99746	8
56	14		0.99275	9.99746			0.99541		0.99652		0.99747	4
50	1 X											1 4
			39m	12h			31m		27m		23m	1
S	′	11h 21m	170°	11h 25m	171°	11h 29m	172°	11h 33m	173°	11h 37m	174°	S
0	15	9.99685	0.99278	9.99747	0.99418	9.99801	0.99543	9.99849	0.99653	9.99891	0.99748	60
4	16	.99686	.99280	.99748	.99420	.99802	.99545	.99850	.99655	.99891	.99750	56
8	17	.99687	.99283	.99748	.99422	.99803	.99547	.99851	.99657	.99892	.99751	52
12	18	.99688	.99285	.99749	.99425	.99804	.99549	.99851	.99659	.99893	.99753	48
16	19	9.99690	0.99288	9.99750	0.99427	9.99805	0.99551	9.99852	0.99660	9.99893	0.99754	44
20	20	.99691	.99290	.99751	.99429	.99805	.99553	.99853	.99662	.99894	.99756	40
24	21	.99692	.99293	.99752	.99431	.99806	.99555	.99854	.99664	.99894	.99757	36
28	22	.99693	.99295	.99753	.99433	.99807	.99557	.99854	.99665	.99895	.99759	32
32	23	9,99694	0.99297	9.99754	0.99436	9.99808	0.99559	9.99855	0.99667	9.99896	0.99760	28
36	24	.99695	.99300	.99755	.99438	.99809	.99561	.99856	.99669	.99896	.99761	24
40	25	.99696	.99302	.99756	.99440	.99810	.99563	.99857	.99670	.99897	.99763	20.
44	26	.99697	.99305	.99757	.99442	.99811	.99565	.99857	.99672	.99897	.99674	16
48	27	9.99698	0.99307	9.99758	0.99444	9.99811	0.99567	9.99858	0.99674	9.99898	0.99766	
52	28	.99699	.99309	.99759	.99446	.99812	.99568	.99859	.99675	.99899	.99767	12
56	29	9.99700	0.99312	9.99760	0.99449	9.99813	0.99570	9.99859	0.99677	9.99899	0.99768	4
		12n							1			1
			3800	1911	8/1111	19n	20m	791	96m	791	99111	•
				12h			30m		26m		22m	1 0
s	′	11h 22m	170°	11h 26m	171°	11h 30m	172°	11h 34m	173°	11h 38m	174°	8
0	30	11h 22m 9.99701	170° 0.99314	11h 26m 9.99761	171° 0.99451	11h 30m 9.99814	172° 0.99572	11h 34m 9.99860	173° 0.99679	11h 38m 9.99900	174° 0.99770	60
0 4	30 31	11h 22m 9.99701 .99702	170° 0.99314 .99317	11h 26m 9.99761 .99762	171° 0.99451 .99453	11h 30m 9.99814 .99815	172° 0.99572 .99574	11h 34m 9.99860 .99861	173° 0.99679 .99680	11h 38m 9.99900 .99901	174° 0.99770 .99771	60 56
0 4 8	30 31 32	11h 22m 9.99701 .99702 .99703	170° 0.99314 .99317 .99319	11h 26m 9.99761 .99762 .99763	171° 0.99451 .99453 .99455	11h 30m 9.99814 .99815 .99815	172° 0.99572 .99574 .99576	11h 34m 9.99860 .99861 .99862	173° 0.99679 .99680 .99682	11h 38m 9.99900 .99901 .99901	174° 0.99770 .99771 .99773	60 56 52
0 4 8 12	30 31 32 33	11h 22m 9.99701 .99702 .99703 .99704	170° 0.99314 .99317 .99319 .99321	11h 26m 9.99761 .99762 .99763 .99764	171° 0.99451 .99453 .99455 .99457	11h 30m 9.99814 .99815 .99815 .99816	172° 0.99572 .99574 .99576 .99578	11h 34m 9.99860 .99861 .99862 .99862	173° 0.99679 .99680 .99682 .99684	11h 38m 9.99900 .99901 .99901 .99902	174° 0.99770 .99771 .99773 .99774	60 56 52 48
0 4 8 12 16	30 31 32 33 34	11h 22m 9.99701 .99702 .99703 .99704 9.99705	170° 0.99314 .99317 .99319 .99321 0.99324	9.99761 .99762 .99763 .99764 9.99765	171° 0.99451 .99453 .99455 .99457 0.99459	9.99814 9.99815 .99815 .99816 9.99817	172° 0.99572 .99574 .99576 .99578 0.99580	9.99860 .99861 .99862 .99862 9.99863	173° 0.99679 .99680 .99682 .99684 0.99685	11h 38m 9.99900 .99901 .99901 .99902 9.99902	174° 0.99770 .99771 .99773 .99774 0.99775	60 56 52 48 44
0 4 8 12 16 20	30 31 32 33 34 35	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706	170° 0.99314 .99317 .99319 .99321 0.99324 .99326	9.99761 .99762 .99763 .99764 9.99765 .99766	171° 0.99451 .99453 .99455 .99457 0.99459 .99461	9.99814 9.99815 .99815 .99816 9.99817 .99818	172° 0.99572 .99574 .99576 .99578 0.99580 .99582	11h 34m 9.99860 .99861 .99862 .99862 9.99863 .99864	173° 0.99679 .99680 .99682 .99684 0.99685 .99687	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903	174° 0.99770 .99771 .99773 .99774 0.99775 .99777	60 56 52 48 44 40
0 4 8 12 16 20 24	30 31 32 33 34 35 36	9.99701 .99702 .99703 .99704 9.99705 .99706 .99707	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329	9.99761 .99762 .99763 .99764 9.99765 .99766 .99766	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99464	9.99814 .99815 .99815 .99816 9.99817 .99818 .99819	172° 0.99572 .99574 .99576 .99578 0.99580 .99582 .99584	9.99860 .99861 .99862 .99862 9.99863 .99864	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904	174° 0.99770 .99771 .99773 .99774 0.99775 .99777	60 56 52 48 44 40 36
0 4 8 12 16 20 24 28	30 31 32 33 34 35 36 37	9.99701 .99702 .99703 .99704 9.99705 .99706 .99707	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331	9.99761 .99762 .99763 .99764 9.99765 .99766 .99766	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99464	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820	172° 0.99572 .99574 .99576 .99578 0.99580 .99582 .99584 .99585	11h 34m 9.99860 .99861 .99862 .99862 9.99863 .99864 .99864	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904 .99904	174° 0.99770 .99771 .99773 .99774 0.99775 .99777 .99778 .99780	60 56 52 48 44 40 36 32
0 4 8 12 16 20 24 28 32	30 31 32 33 34 35 36 37 38	9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99708 9.99710	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333	9.99761 .99762 .99763 .99764 9.99765 .99766 .99766 .99767 9.99768	171° 0.99451 .99453 .99457 0.99459 .99461 .99464 .99466 0.99468	11h 30m 9.99814 .99815 .99816 9.99816 9.99818 .99819 .99820 9.99820	172° 0.99572 .99574 .99576 .99578 0.99580 .99582 .99584 .99585	9.99860 .99861 .99862 .99862 .99862 9.99863 .99864 .99864 .99865 9.99866	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904 .99904 9.99905	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781	60 56 52 48 44 40 36 32 28
0 4 8 12 16 20 24 28 32 36	30 31 32 33 34 35 36 37 38 39	9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99708 9.99710	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333 .99336	9.99761 .99762 .99763 .99764 9.99765 .99766 .99766 .99767 9.99768	171° 0.99451 .99453 .99457 0.99459 .99461 .99464 .99466 0.99468 .99470	11h 30m 9.99814 .99815 .99816 9.99816 9.99817 .99818 .99819 .99820 9.99820 .99821	172° 0.99572 .99574 .99576 .99578 0.99580 .99582 .99584 .99585 0.99587	11h 34m 9.99860 .99861 .99862 .99862 9.99863 .99864 .99865 9.99866 .99867	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904 .99904 9.99905 .99905	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782	60 56 52 48 44 40 36 32 28 24
0 4 8 12 16 20 24 28 32 36 40	30 31 32 33 34 35 36 37 38 39 40	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99708 9.99710 .99711 .99712	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99331 0.99333 .99336	11h 26m 9.99761 .99762 .99763 .99764 9.99765 .99766 .99766 .99767 9.99768 .99769 .99770	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99466 0.99468 .99470	11h 30m 9.99814 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822	172° 0.99572 .99574 .99576 .99578 0.99580 .99582 .99582 .99585 0.99587 0.99589	9.99860 .99862 .99862 .99862 .99863 .99864 .99864 .99865 9.99866 .99867	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99695	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904 .99904 9.99905 .99906	174° 0.99770 .99771 .99773 .99774 0.99775 .99777 .99780 0.99781 .99782 .99784	60 56 52 48 44 40 36 32 28 24 20
0 4 8 12 16 20 24 28 32 36 40 44	30 31 32 33 34 35 36 37 38 39 40 41	11h 22m 9.99701 .99702 .99703 .99704 9.99706 .99706 .99707 .99708 9.99710 .99711 .99712	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333 .99336 .99338	11h 26m 9.99761 .99762 .99763 .99764 9.99766 .99766 .99767 9.99768 .99769 .99770 .99771	171° 0.99451 .99453 .99455 .99457 0.99461 .99464 .99466 0.99468 .99472 .99474	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 9.99820 .99821 .99822 .99823	172° 0.99572 .99574 .99576 .99578 0.99580 .99582 .99584 .99585 0.99587 .99589	11h 34m 9.99860 .99861 .99862 .99863 .99864 .99864 .99865 9.99866 .99867 .99868	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693	11h 88m 9.99900 .99901 .99901 .99902 9.99902 .99904 .99904 9.99905 .99906	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	11h 22m 9.99701 .99702 .99703 .99704 9.99706 .99706 .99706 .99710 .99711 .99712 .99713 9.99714	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333 .99336 .99340 0.99343	11h 26m 9.99761 .99762 .99763 .99764 9.99766 .99766 .99767 9.99768 .99769 .99770 .99771 9.99772	171° 0.99451 .99453 .99455 .99457 0.99461 .99464 .99466 0.99468 .99470 .99474	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99823 9.99824	172° 0.99572 .99574 .99576 .99578 0.99582 .99584 .99585 0.99587 .99589 .99591	11h 34m 9.99860 .99861 .99862 .99862 9.99863 .99864 .99865 9.99866 .99867 .99868 9.99869	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99696 0.99698	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99904 .99904 9.99905 .99906 .99906 9.9906	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784 .99784 .99785 0.99786	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 43	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99710 .99711 .99712 .99713 9.99714 .99715	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333 .99336 .99340 0.99343 .99345	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99766 .99768 .99769 .99770 .99771 9.99772	171° 0.99451 .99453 .99455 .99457 .99464 .99464 .99468 .99470 .99472 .99474 0.99478	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99823 9.99824	172° 0.99572 .99574 .99576 .99578 0.99582 .99584 .99585 0.99587 .99589 .99593	11h 34m 9.99860 .99861 .99862 .99863 .99864 .99864 .99865 9.99866 .99867 .99868 9.99869 9.99869	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99696 0.99698	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904 .99904 9.99905 .99906 .99906 .99906 .99908	174° 0.99770 .99771 .99773 .99774 0.99775 .99777 .99780 0.99781 .99782 .99784 .99785 0.99786	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48	30 31 32 33 34 35 36 37 38 39 40 41 42	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99710 .99711 .99712 .99713 9.99715 9.99716	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333 .99336 .99340 0.99343 .99345 0.99347	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99766 .99769 .99770 .99771 9.99773 9.99774	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99466 0.99468 .99470 .99472 .99474 0.99478 0.99480	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99823 9.99824 9.99824	172° 0.99572 .99574 .99576 .99580 .99582 .99584 .99585 0.99587 .99589 .99591 .99593	11h 34m 9.99860 .99861 .99862 .99862 9.99864 .99864 .99865 9.99866 .99867 .99868 9.99869 9.99869 9.99870	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99696 0.99698 0.99698	11h 38m 9.99900 .99901 .99901 .99902 .99903 .99904 .99904 .99905 .99906 .99906 .99906 .99908 9.99908	174° 0.99770 .99771 .99773 .99775 .99777 .99778 .99780 0.99781 .99782 .99784 .99785 0.99786	60 56 52 48 44 40 36 32 28 24 20 16
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	$\begin{array}{c} 11h \ 22m \\ \hline 9.99701 \\ .99702 \\ .99703 \\ .99704 \\ \hline 9.99705 \\ .99706 \\ .99707 \\ .99708 \\ \hline 9.99710 \\ .99711 \\ .99712 \\ .99713 \\ \hline 9.99714 \\ .99715 \\ \hline 9.99716 \\ \hline \end{array}$	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99333 0.99333 .99336 .99340 0.99343 .99345 0.99347 37m	$\begin{array}{c} 11h\ 26m \\ 9.99761 \\ .99762 \\ .99763 \\ .99765 \\ .99766 \\ .99766 \\ .99766 \\ .99768 \\ .99769 \\ .99770 \\ .99771 \\ 9.99772 \\ .99773 \\ 9.99774 \\ \hline $	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99468 0.99468 .99470 .99474 0.99478 0.99478 0.99480	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99823 9.99824 .99824 .99824 .99825 12h	172° 0.99572 .99574 .99576 .99580 .99582 .99584 .99585 0.99587 .99589 .99591 .99593 0.99595 .99598	11h 34m 9.99860 .99861 .99862 .99863 .99864 .99864 .99865 9.99867 .99867 .99869 9.99869 9.99869 9.99870 12h	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99698 .99700 0.99701 25m	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904 .99905 .99905 .99906 .99906 .99908 9.99908 9.99908	174° 0.99770 .99771 .99773 .99775 .99777 .99780 .99781 .99782 .99784 .99785 0.99786 0.99786	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52	30 31 32 33 34 35 36 37 38 39 40 41 42 43	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99710 .99711 .99712 .99713 9.99715 9.99716	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333 .99346 0.99343 .99345 0.99347 37m	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99766 .99769 .99770 .99771 9.99773 9.99774	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99466 0.99468 .99470 .99472 .99474 0.99478 0.99480	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 .99821 .99822 .99823 9.99824 .99824 .99825 .12h	172° 0.99572 .99574 .99576 .99580 .99582 .99584 .99585 0.99587 .99589 .99591 .99593	11h 34m 9.99860 .99861 .99862 .99862 9.99864 .99864 .99865 9.99866 .99867 .99868 9.99869 9.99869 9.99870	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99696 0.99698 .99700 0.99701 25m	11h 38m 9.99900 .99901 .99901 .99902 .99903 .99904 .99904 .99905 .99906 .99906 .99906 .99908 9.99908	174° 0.99770 .99771 .99773 .99775 0.99775 .99777 .9978 0.99781 .99782 .99784 .99785 0.99786 0.99788	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	$\begin{array}{c} 11h \ 22m \\ \hline 9.99701 \\ .99702 \\ .99703 \\ .99704 \\ \hline 9.99705 \\ .99706 \\ .99707 \\ .99708 \\ \hline 9.99710 \\ .99711 \\ .99712 \\ .99713 \\ \hline 9.99714 \\ .99715 \\ \hline 9.99716 \\ \hline \end{array}$	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99333 0.99333 .99336 .99340 0.99343 .99345 0.99347 37m	$\begin{array}{c} 11h\ 26m \\ 9.99761 \\ .99762 \\ .99763 \\ .99765 \\ .99766 \\ .99766 \\ .99766 \\ .99768 \\ .99769 \\ .99770 \\ .99771 \\ 9.99772 \\ .99773 \\ 9.99774 \\ \hline $	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99468 0.99468 .99470 .99474 0.99478 0.99478 0.99480	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99823 9.99824 .99824 .99824 .99825 12h	172° 0.99572 .99574 .99576 .99580 .99582 .99584 .99585 0.99587 .99589 .99591 .99593 0.99595 .99598	11h 34m 9.99860 .99861 .99862 .99863 .99864 .99864 .99865 9.99867 .99867 .99869 9.99869 9.99869 9.99870 12h	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99698 .99700 0.99701 25m	11h 38m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99905 .99906 .99906 .99906 .99908 9.99908 12h	174° 0.99770 .99771 .99773 .99775 .99777 .99778 .99780 .99781 .99782 .99784 .99785 0.99786 0.99788 0.99789 21m 174° 0.99790	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 33 34 35 36 37 38 39 40 41 42 43 44	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99710 .99711 .99712 .99713 9.99715 9.99716 12h	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99333 .99346 0.99343 .99345 0.99347 37m	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99779 .99771 9.99772 .99773 9.99774 12h 11h 27m 9.99774 .99775	171° 0.99451 .99453 .99455 .99457 0.99461 .99464 .99466 0.99468 .99470 .99472 .99474 0.99476 0.99480 33m 171° 0.99483 .99485	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99820 9.99820 9.9822 .99823 9.99824 .99824 .99825 12h 11h 31m 9.99826 .99827	172° 0.99572 .99574 .99576 .99578 0.99580 .99582 .99584 .99585 0.99587 0.99593 0.99597 0.99598	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99866 .99867 .99869 .99869 .99869 .99869 .99870 12h	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99696 0.99698 .99700 0.99701 25m	11h 38m 9.99900 .99901 .99901 .99902 9.99902 .99903 .99904 .99905 .99905 .99906 .99906 .99908 9.99908 12h	174° 0.99770 .99771 .99773 .99775 0.99775 .99777 .9978 0.99781 .99782 .99784 .99785 0.99786 0.99788	60 56 52 48 44 40 36 32 28 24 20 16 12 8
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56	30 31 32 33 33 34 35 36 37 38 39 40 41 42 43 44	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99706 .99710 .99711 .99712 .99713 9.99714 .99715 9.99716 12h 11h 23m 9.99718 .99718 .99718 .99719	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99333 .99336 .99338 .99340 0.99343 .99347 37m 170° 0.99350 .99352 .99354	11h 26m 9.99761 .99762 .99763 .99764 9.99765 .99766 .99766 .99769 .99770 .99771 9.99773 9.99774 12h 11h 27m 9.99774	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99466 0.99468 .99472 .99474 0.99476 .99478 0.99480 33m 171° 0.99483 .99485 .99487	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99823 9.99824 .99824 .99825 .12h 11h 31m 9.99826 .99827 .99828	172° 0.99572 .99574 .99576 .99578 0.99582 .99584 .99585 0.99587 0.99593 0.99593 0.99593 172° 0.99600 .99600 .99604	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99866 .99866 .99867 .99869 .99869 .99869 .99870 12h 11h 35m 9.99871 .99871	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99695 .99701 25m 173° 0.99704 .99706	11h 88m 9.99900 .99901 .99901 .99902 9.99902 .99904 9.99905 .99906 9.9906 9.99907 .99908 12h 11h 89m 9.99909 .99909 .99909	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784 .99785 0.99789 21m 174° 0.99790 .99792 .99793 .99793	60 56 52 48 44 40 36 32 28 24 20 11 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12	30 31 32 33 34 35 36 37 38 40 41 42 43 44 47 48	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99711 .99712 .99713 9.99714 .99715 9.99716 12h 11h 23m 9.99717 .99718 .99719 .99719	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99338 .99340 0.99343 .99347 37m 170° 0.99350 .99352	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99779 .99771 9.99772 .99773 9.99774 12h 11h 27m 9.99774 .99775	171° 0.99451 .99453 .99455 .99457 0.99461 .99464 .99466 0.99468 .99470 .99472 .99474 0.99476 0.99480 33m 171° 0.99483 .99485	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99824 9.99824 9.99825 12h 11h 31m 9.99826 .99828 .99828	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 0.99593 .99593 0.99595 29m 172° 0.99600 .99602 .99604	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99866 .99867 .99869 .99869 .99869 .99869 .99870 12h	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99698 .99700 0.99701 25m 173° 0.99703 .99704 .99706	11h 38m 9.99900 .99901 .99901 .99902 .99903 .99904 .99905 .99905 .99906 .99906 .99908 12h 11h 39m 9.9909 .99909 .99909 .99909 .99910 .99911	174° 0.99770 .99771 .99773 .99774 0.99775 .99777 .99780 0.99781 0.99781 0.99786 0.99786 0.99786 0.99788 0.99789 21m 174° 0.99790 .99793 .99793	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 0 4 8 12 16	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 44 45 46 47 48 49	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99706 .99710 .99711 .99712 .99713 9.99714 .99715 9.99716 12h 11h 23m 9.99718 .99718 .99718 .99719	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99333 .99336 .99338 .99340 0.99343 .99347 37m 170° 0.99350 .99352 .99354	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99768 .99779 .99771 9.99772 .99773 9.99774 12h 11h 27m 9.99774 .99775 .99776	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99466 0.99468 .99472 .99474 0.99476 .99478 0.99480 33m 171° 0.99483 .99485 .99487	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99823 9.99824 .99824 .99825 .12h 11h 31m 9.99826 .99827 .99828	172° 0.99572 .99574 .99576 .99578 0.99582 .99584 .99585 0.99587 0.99593 0.99593 0.99593 172° 0.99600 .99600 .99604	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99866 .99866 .99867 .99869 .99869 .99869 .99870 12h 11h 35m 9.99871 .99871	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99695 .99701 25m 173° 0.99704 .99706	11h 38m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99905 .99906 .99906 .99908 12h 11h 39m 9.99909 .99910 .99911 9.99911	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784 .99786 0.99786 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796	60 56 52 48 44 40 36 32 28 24 20 11 12 8 4
0 4 8 12 16 20 24 28 32 36 36 40 44 48 52 56 8 12 16 16 16 16 16 16 16 16 16 16 16 16 16	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99719 .99720 9.99721	170° 0.99314 .99317 .99319 .99321 .99324 .99326 .99333 .99336 .99338 .99340 0.99343 .99347 37m 170° 0.99350 .99354 .99354	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99769 .99771 9.99773 9.99774 .99774 .99775 .99776 .99777 9.99778 .99777 9.99778	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99466 0.99468 .99470 .99472 .99474 0.99476 0.99480 33m 171° 0.99483 .99489 39485 .99489 0.99491 .99493	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99824 9.99824 9.99825 12h 11h 31m 9.99826 .99828 .99828	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 0.99593 .99593 0.99595 29m 172° 0.99600 .99602 .99604	11h 34m 9.99860 .99861 .99862 9.99863 9.99864 .99864 .99867 .99867 .99869 9.99869 9.99869 9.99869 .99869 .99871 .99871 .99871 .99872 .99873	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99696 0.99701 25m 173° 0.99703 .99704 .99706 .99708	11h 38m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99906 .99906 .99906 9.99908 12h 11h 39m 9.99909 .99911 9.99911	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784 .99785 0.99788 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796	60 56 52 48 44 40 40 56 52 28 24 20 16 12 8 4 40
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 28 24 28 26 26 26 26 26 26 26 26 26 26 26 26 26	30 31 32 33 33 34 35 36 37 38 39 40 41 42 43 44 47 48 49 50 50	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99710 .99711 .99712 .99713 9.99714 .99715 9.99716 12h 23m 9.99719 .99720 9.99721 .99722 .99723	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99331 0.99336 .99340 0.99343 .99347 37m 170° 0.99350 .99352 .99354 .99357 0.99359 .99361 .99361	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99768 .99770 .99771 9.99773 9.99774 12h 11h 27m 9.99774 .99775 .99777 9.99778	171° 0.99451 .99453 .99455 .99457 0.99461 .99464 .99466 0.99470 .99472 .99474 0.99480 33m 171° 0.99483 .99485 .99489 0.99491 .99493	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99820 9.99820 9.9822 .99823 9.99824 .99824 .99825 12h 11h 31m 9.99826 .99828 .99828 .99828 .99828	172° 0.99572 .99574 .99576 .99576 0.99582 .99584 .99585 0.99587 0.99589 0.99591 0.99593 0.99595 29m 172° 0.99600 0.99602 .99604 .99606 0.99608 .99609	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99867 .99867 .99869 9.99870 12h 11h 35m 9.99871 .99871 .99873 .99873 .99873	173° 0.99679 .99680 .99682 .99685 .99685 .99698 .99693 .99695 .99696 0.99701 25m 173° 0.99703 .99704 .99706 .99709 .99711	11h \$8m 9.99900 .99901 .99901 .99902 9.99902 .99904 9.99905 .99906 .99906 9.99907 .99908 12h 11h \$9m 9.99909 .99910 .99911 9.99911 9.99912	174° 0.99770 .99771 .99773 .99773 0.99775 .99778 .99780 0.99781 .99782 .99784 .99788 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 56 52 48 4 40 56 52 52 52 52 52 52 52 52
0 4 8 12 16 20 24 28 36 40 44 48 52 56 8 0 4 8 12 16 20 24 28 28 22 23 23 24 28 28 28 28 28 28 28 28 28 28 28 28 28	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 47 48 49 50 50 51 52	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99719 .99722 .99723 .99723 .99724	170° 0.99314 .99317 .99319 .99321 .99324 .99326 .99333 .99336 .99338 .99340 0.99343 .99347 377m 170° 0.99350 .99352 .99354 .99354 .99354 .99354	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99768 .99770 .99771 9.99772 .99773 9.99774 .99774 .99775 .99776 .99776 .99776 .99776 .99778 .99778 .99778 .99778 .99778 .99778 .99778 .99778	171° 0.99451 .99453 .99455 .99455 .99451 .99464 .99466 0.99468 .99470 .99472 .99478 0.99476 0.99480 33m 171° 0.99483 .99485 .99485 .99485 .99487 .99487	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99821 .99822 .99823 9.99824 9.99825 12h 11h 31m 9.99826 .99827 .99828 9.99828 9.99829 .99830 .99831	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 0.99595 .99597 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99609	11h 34m 9.99860 .99861 .99862 9.99863 9.99864 .99865 9.9867 .99867 .99869 9.99869 9.99870 12h 11h 35m 9.99871 .99871 .99872 .99873 .99874 .99874 .99876	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99698 0.99698 0.99701 25m 173° 0.99703 0.99704 .99706 0.99709 0.99711 .99712	11h 38m 9.99900 .99901 .99901 .99902 9.99902 9.99904 .99905 .99906 .99906 .99908 9.99908 12h 11h 39m 9.99909 .99910 .99911 9.9911 9.9911 .99912 .99913	174° 0.99770 .99771 .99773 .99774 0.99775 .99777 .99780 0.99781 .99785 0.99786 0.99786 0.99786 0.99786 0.99786 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796 .99797	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 56 52 48 44 40 40 40 40 40 40 40
0 4 8 12 16 20 24 28 32 32 36 40 44 48 48 55 56 8 0 4 4 8 12 16 20 24 28 32 32 32 32 32 32 32 32 32 32 32 32 32	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 47 48 49 50 51 52 53	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99719 99720 9.99721 .99722 .99723 .99724 9.99725	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99336 .99336 .99340 0.99343 0.99345 0.99347 27m 170° 0.99350 .99352 .99352 .99351 .99366 0.99368	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99769 .99771 9.99772 .99773 9.99774 12h 11h 27m 9.99774 .99775 .99776 .99777 9.99778 .99778	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99468 .99478 0.99478 0.99478 0.99480 33m 171° 0.99483 .99485 .99489 0.99491 .99497	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 .99821 .99822 .99823 9.99824 9.99825 12h 11h 31m 9.99826 .99827 .99828 9.99829 .99830 .99831 .99832 9.99832	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 .99593 0.99595 0.99597 0.99598 29m 172° 0.99600 .99602 .99604 .99608 .99609 .99611 0.99613	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99867 .99869 .99869 .99869 .99869 .99870 12h 11h 35m 9.99871 .99871 .99873 .99874 .99874 .99874	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99695 .99696 0.99698 0.99700 0.99701 25m 173° 0.99703 .99704 .99706 0.99701 .99711 .99711	11h 38m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99906 .99906 .99908 12h 11h 39m 9.99909 .99910 .99911 .99911 .99912 .99913	174° 0.99770 .99771 .99773 .99774 .99775 .99777 .99780 .99781 .99785 .99786 .99788 .99789 .99790 .99794 .99794 .99796 .99794 .99796 .99797 .99798 .99799 .99799 .99799 .99801	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 8 4 4 9 60 56 52 48 44 40 40 8 44 40 8 40 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 0 4 28 8 12 16 16 20 24 28 28 28 28 28 28 28 28 28 28 28 28 28	30 31 32 33 34 35 36 37 38 40 41 42 43 44 44 45 46 47 48 49 50 51 52 53 53 54	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99718 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99719 9.99720 9.99720 9.99721 .99723 .99724 9.99725 .99726	170° 0.99314 .99317 .99319 .99321 .99324 .99326 .99333 .99336 .99338 .99340 0.99343 .99347 377m 170° 0.99350 .99352 .99354 .99354 .99354 .99354	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99768 .99770 .99771 9.99772 .99773 9.99774 .99774 .99775 .99776 .99776 .99776 .99776 .99777 9.99778 .99778 .99778 .99778 .99778 .99778 .99778 .99778	171° 0.99451 .99453 .99455 .99455 .99451 .99464 .99466 0.99468 .99470 .99472 .99478 0.99476 0.99480 33m 171° 0.99483 .99485 .99485 .99485 .99487 .99487	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99821 .99822 .99823 9.99824 9.99825 12h 11h 31m 9.99826 .99827 .99828 9.99828 9.99829 .99830 .99831	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 0.99595 .99597 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99609	11h 34m 9.99860 .99861 .99862 9.99863 9.99864 .99865 9.9867 .99867 .99869 9.99869 9.99870 12h 11h 35m 9.99871 .99871 .99872 .99873 .99874 .99874 .99876	173° 0.99679 .99680 .99682 .99684 0.99685 .99697 .99693 .99693 .99696 0.99692 0.99701 25m 173° 0.99703 .99704 .99706 .99708 0.99715 .99711 0.99715	11h 38m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99906 .99906 9.99908 12h 11h 39m 9.99909 .99910 .99911 9.99912 .99912 .99913 9.99913	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99788 0.99788 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796 .99799 0.99801 .99802	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 60 56 52 48 44 40 36 56 52 28 28 28 24 20 20 20 20 20 20 20 20 20 20 20 20 20
0 4 8 12 16 20 24 28 32 32 36 40 44 48 48 55 56 8 0 4 4 8 12 16 20 24 28 32 32 32 32 32 32 32 32 32 32 32 32 32	30 31 32 33 34 35 36 37 38 40 41 42 43 44 45 46 47 48 49 50 50 51 52 53 54 55 55	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99719 9.99720 9.99721 .99722 .99723 .99724 9.99725	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99336 .99336 .99340 0.99343 0.99345 0.99347 27m 170° 0.99350 .99352 .99352 .99351 .99366 0.99368	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99768 .99770 .99771 9.99774 .12h 11h 27m 9.99774 .99775 .99776 .99778 .99779 .99778 .99778 .99778 .99778	171° 0.99451 .99453 .99455 .99457 0.99459 .99464 .99468 .99478 0.99478 0.99478 0.99480 33m 171° 0.99483 .99485 .99489 0.99491 .99497	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 .99821 .99822 .99823 9.99824 9.99825 12h 11h 31m 9.99826 .99827 .99828 9.99829 .99830 .99831 .99832 9.99832	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 .99593 0.99595 0.99597 0.99598 29m 172° 0.99600 .99602 .99604 .99608 .99609 .99611 0.99613	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99867 .99867 .99869 9.99870 12h 11h 35m 9.99871 .99871 .99871 .99873 .99874 .99874 .99876 .99876	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99695 .99696 0.99698 0.99700 0.99701 25m 173° 0.99703 .99704 .99706 0.99701 .99711 .99711	11h 88m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99906 .99906 .99908 12h 11h 89m 9.99909 .99910 .99911 9.99912 .99913 9.99913 9.99913 9.99915	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784 .99785 0.99786 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796 .99796 .99796 .99796 .99796 .99798	60 56 52 48 44 40 36 32 28 22 20 16 12 8 4 4 60 56 52 48 44 40 36 56 52 28 28 20 16 12 20 20 20 20 20 20 20 20 20 20 20 20 20
0 4 8 12 16 20 24 28 36 40 44 48 52 56 8 12 16 20 24 48 8 12 16 20 44 48 48 48 52 52 56 40 40 44 48 48 48 48 48 48 48 48 48 48 48 48	30 31 32 33 34 35 36 37 38 39 41 42 43 44 47 48 49 50 51 52 53 55 55 56	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99718 .99719 .99722 .99723 .99724 9.99725 .99725 .99728	170° 0.99314 .99317 .99319 .99321 .99324 .99326 .99333 .99336 .99340 0.99343 .99345 0.99347 377m 170° 0.99350 .99352 .99354 .99354 .99357 0.99359 .99361 .99364 .99368 .99373 .99373	11h 26m 9.99761 .99762 .99763 .99764 9.99766 .99766 .99768 .99768 .99770 .99771 9.99774 .99774 .99774 .99775 .99776 .99776 .99776 .99776 .99776 .99778 .99778 .99778 .99778 .99778 .99783 .99783 .99783 .99783	171° 0.99451 .99453 .99455 .99455 .99457 0.99464 .99466 0.99468 .99470 .99472 .99478 0.99476 0.99480 33m 171° 0.99483 .99485 .99485 .99485 .99485 .99487 0.99491 .99503	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99824 9.99825 12h 11h 31m 9.99826 .99827 .99828 9.99829 .99830 .99831 .99832 9.99832 .99833 .99833	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 0.99595 .99597 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99609 .99611 .99613 0.99615 .99618	11h 34m 9.99860 .99861 .99862 9.99863 9.99864 .99865 9.9867 .99869 9.9869 9.99870 12h 11h 35m 9.99871 .99871 .99873 9.9874 .99874 .99876 .99876 .99876 .99876 .99876 .99876 .99878	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99695 .99698 0.99701 25m 173° 0.99703 .99704 .99706 .99708 0.99709 .99711 .99712 .99714 0.99715 .99719	11h 38m 9.99900 .99901 .99901 .99902 .99903 .99904 .99905 .99906 .99906 .99908 12h 11h 39m 9.99909 .99911 9.99911 9.99911 9.99913 9.99913 9.99915	174° 0.99770 .99771 .99773 0.99775 .99777 0.99780 0.99781 .99785 0.99786 0.99786 0.99786 0.99786 0.99789 21m 174° 0.99790 0.99792 0.99793 0.99792 0.99793 0.99792 0.99801 0.99801 0.99803	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 8 4 4 9 56 52 48 4 4 4 9 16 52 4 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 42 8 8 12 16 16 16 16 16 16 16 16 16 16 16 16 16	30 31 32 33 34 35 36 37 38 39 40 41 42 44 44 47 47 48 49 50 50 50 50 50 50 50 50 50 50 50 50 50	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99708 9.99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99719 .99720 9.99721 .99722 .99723 .99724 9.99726 .99726 .99727	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99333 .99336 .99338 .99340 0.99343 .99345 0.99357 0.99350 .99352 .99354 .99356 .99356 .99359 .99361 .99366 .99366 .99368	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99779 9.99771 9.99773 9.99774 .99774 .99775 .99776 .99776 .99777 9.99778 .99778 .99778 .99778 .99778 .99781 9.99781 9.99781	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99466 0.99468 .99470 .99472 .99474 0.99480 33m 171° 0.99483 .99489 0.99489 0.99491 .99493 .99497 0.99497 0.99493	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99820 .99821 .99822 .99824 9.99825 12h 11h 31m 9.99826 .99827 .99828 9.99829 .99830 .99831 .99832 9.99832 .99833 .99833	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 0.99597 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99601 .99615 .99613 0.99617 .99620 0.99622	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99867 .99869 .99869 .99869 .99870 12h 11h 35m 9.9871 .99871 .99873 .99874 .99874 .99876 .99876 .99876 .99876 .99877 .99878	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99696 0.99701 25m 173° 0.99703 .99704 .99706 .99708 0.99701 .99712 .99715 .99717	11h 88m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99906 .99906 .99908 12h 11h 89m 9.99909 .99910 .99911 9.99912 .99913 9.99913 9.99913 9.99915	174° 0.99770 .99771 .99773 .99774 0.99775 .99777 .9978 .99781 .99782 .99784 .99786 0.99786 0.99789 21m 174° 0.99790 .99792 .99794 0.99796 .99799 0.99801 .99802 .99805 0.99806	60 56 52 48 44 40 36 32 28 22 20 16 12 8 4 4 60 56 52 48 44 40 36 36 32 28 22 8 44 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 24 28 36 40 44 48 52 56 8 12 16 20 24 48 8 12 16 20 44 48 48 48 52 52 56 40 40 44 48 48 48 48 48 48 48 48 48 48 48 48	30 31 32 33 34 35 36 37 38 40 41 42 43 44 49 50 51 55 55 55 57 57	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99718 .99719 .99722 .99723 .99724 9.99725 .99725 .99728	170° 0.99314 .99317 .99319 .99321 .99324 .99326 .99333 .99336 .99340 0.99343 .99345 0.99347 377m 170° 0.99350 .99352 .99354 .99354 .99357 0.99359 .99361 .99364 .99368 .99373 .99373	11h 26m 9.99761 .99762 .99763 .99764 9.99766 .99766 .99768 .99768 .99770 .99771 9.99774 .99774 .99774 .99775 .99776 .99776 .99776 .99776 .99776 .99778 .99778 .99778 .99778 .99778 .99783 .99783 .99783 .99783	171° 0.99451 .99453 .99455 .99455 .99457 0.99464 .99466 0.99468 .99470 .99472 .99478 0.99476 0.99480 33m 171° 0.99483 .99485 .99485 .99485 .99485 .99487 0.99491 .99503	11h 30m 9.99814 9.99815 9.99815 9.99816 9.99817 9.99820 9.99821 9.99821 9.99824 9.99824 9.99825 12h 11h 31m 9.99828 9.99828 9.99829 9.99830 9.99811 9.99832 9.99832 9.99833	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 0.99595 .99597 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99609 .99611 .99613 0.99615 .99618	11h 34m 9.99860 .99861 .99862 9.99863 9.99864 .99865 9.9867 .99869 9.9869 9.99870 12h 11h 35m 9.99871 .99871 .99873 9.9874 .99874 .99876 .99876 .99876 .99876 .99876 .99876 .99878	173° 0.99679 .99680 .99682 .99684 0.99685 .99687 .99688 .99690 0.99692 .99693 .99695 .99698 0.99701 25m 173° 0.99703 .99704 .99706 .99708 0.99709 .99711 .99712 .99714 0.99715 .99719	11h 38m 9.99900 .99901 .99901 .99902 .99903 .99904 .99905 .99906 .99906 .99908 12h 11h 39m 9.99909 .99911 9.99911 9.99911 9.99913 9.99913 9.99915	174° 0.99770 .99771 .99773 .99773 0.99775 .99778 .99780 0.99781 .99782 .99784 .99786 0.99786 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99790 .99792 .99793 0.99801 .99802 .99803 .99806 .99807	60 56 52 48 44 40 36 32 28 24 20 16 12 8 4 4 8 4 4 9 56 52 48 4 4 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 48 8 12 16 20 24 44 44 44 44 44 44 44 44 44 44 44 44	30 31 32 33 34 35 36 37 38 40 41 42 43 44 47 48 49 50 51 55 55 56 57 58 59	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99708 9.99711 .99712 .99713 9.99714 .99715 2.99718 .99716 11h 23m 9.99717 .99718 .99720 9.99721 .99722 .99723 .99724 9.99725 .99726 .99727 .99728 9.99729 .99728 9.99729	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99339 .99336 .99340 0.99343 .99345 0.99350 .99352 .99354 .99356 0.99357 0.99357 0.99359 .99361 .99366 0.99368 .99371 .99373 .99375 0.99378	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99769 .99771 9.99773 9.99774 .99774 .99775 .99776 .99776 .99778 .99778 .99778 .99778 .99780 .99781 9.99782 .99783 .99786 .99786 .99786	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99466 0.99468 .99470 .99472 .99474 0.99478 0.99480 33m 171° 0.99483 .99485 .99489 0.99491 .99493 .99491 .99493 .99495 .99497 0.99499 .99501	11h 30m 9.99814 9.99815 9.99815 9.99816 9.99817 9.99820 9.99821 9.99821 9.99824 9.99825 12h 11h 31m 9.99828 9.99828 9.99829 9.99830 9.9831 9.99832 9.99832 9.99832 9.99832 9.99833 9.99836 9.99836 9.99836	172° 0.99572 .99574 .99576 .99576 0.99580 .99582 .99584 .99585 0.99587 .99593 0.99595 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99609 .99611 .99613 0.99615 .99622 .99624	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99867 .99869 9.99870 .2h .2h	173° 0.99679 .99680 .99682 .99684 0.99685 .99697 .99693 .99693 .99696 0.99692 0.99701 25m 173° 0.99703 .99704 .99706 0.99711 .99712 .99714 0.99715 .99717 .99719 .99722 .99723 .99723	11h 38m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99906 .99906 .99906 9.99908 12h 11h 39m 9.99909 .99910 9.99911 9.99912 .99912 .99913 9.99913 9.99915 .99916 .99916 .99916 .99916	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784 .99785 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796 .99799 0.99801 .99802 .99803 .99806 .99806	60 56 52 48 44 40 36 32 28 24 20 16 112 8 4 60 56 52 48 44 40 36 52 8 4 40 8 40 8 40 8 8 8 8 8 8 8 8 8 8 8
0 4 8 12 16 20 24 28 32 32 36 40 44 48 8 12 16 20 24 28 32 36 20 40 44 48 28 32 36 40 40 40 40 40 40 40 40 40 40 40 40 40	30 31 32 33 34 35 36 37 38 40 41 42 43 44 49 50 51 55 55 55 57 57	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99708 9.99711 .99712 .99713 9.99716 12h 11h 23m 9.99717 .99718 .99719 .99720 9.99721 .99722 .99723 .99724 9.99725 .99725 .99726 .99727 .99728 9.99729	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99329 .99336 .99336 .99345 0.99347 37m 170° 0.99350 .99352 .99352 .99361 .99366 0.99368 .99361 .99368 .99375 0.99378	11h 26m 9.99761 .99762 .99763 .99764 9.99765 .99766 .99767 9.99768 .99770 .99771 9.99773 9.99774 .99774 .99775 .99776 .99778 .99778 .99778 .99780 .99781 9.99781 9.99782 .99785 9.99786 9.99786 9.99786 9.99786	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99466 0.99468 .99470 .99472 .99474 0.99478 0.99480 33m 171° 0.99483 .99485 .99489 0.99491 .99493 .99491 .99493 .99495 .99497 0.99499 .99501	11h 30m 9.99814 .99815 .99815 .99816 9.99817 .99818 .99819 .99820 9.99821 .99822 .99823 9.99824 9.99825 12h 11h 31m 9.99826 .99827 .99828 9.99829 .99830 .99831 .99832 9.99836 .99837 9.99836 .99837 9.99838	172° 0.99572 .99574 .99576 .99576 .99580 .99582 .99584 .99585 0.99587 0.99593 0.99595 .99597 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99611 .99613 0.99615 .99618 .99620 0.99622 .39624 .99626 0.99626	11h 34m 9.99860 .99861 .99862 9.99863 .99864 .99865 9.99867 .99869 9.99870 .2h .2h	173° 0.99679 .99680 .99682 .99684 0.99685 .99688 .99690 0.99692 .99693 .99693 .99696 0.99698 0.99700 0.99701 25m 173° 0.99703 .99704 .99706 0.99701 .99715 .99717 .99719 .99722 .99723	11h 38m 9.99900 .99901 .99901 .99902 9.99903 .99904 .99905 .99906 .99906 .99906 9.99908 12h 11h 39m 9.99909 .99910 9.9911 9.99912 .99912 .99913 9.99913 9.99914 .99915 9.99916	174° 0.99770 .99771 .99773 .99773 0.99775 .99778 .99780 0.99781 .99782 .99784 .99786 0.99786 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99790 .99792 .99793 0.99801 .99802 .99803 .99806 .99807	60 56 52 48 44 40 36 32 28 28 22 8 4 20 16 12 8 4 40 56 56 52 48 44 40 36 56 56 52 48 40 40 40 40 40 40 40 40 40 40 40 40 40
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 8 12 16 20 24 48 8 12 20 24 44 44 44 44 44 44 44 44 44 44 44 44	30 31 32 33 34 35 36 37 38 40 41 42 43 44 47 48 49 50 51 55 55 56 57 58 59	11h 22m 9.99701 .99702 .99703 .99704 9.99705 .99706 .99707 .99708 9.99711 .99712 .99713 9.99714 .99715 2.99718 .99716 12h 11h 23m 9.99717 .99718 .99720 9.99721 .99722 .99723 .99724 9.99725 .99726 .99727 .99728 9.99726 .99727 .99728 9.99729 .99730 .99731 9.99730	170° 0.99314 .99317 .99319 .99321 0.99324 .99326 .99339 .99336 .99340 0.99343 .99345 0.99350 .99352 .99354 .99356 0.99357 0.99357 0.99359 .99361 .99366 0.99368 .99371 .99373 .99375 0.99378	11h 26m 9.99761 .99762 .99763 .99765 .99766 .99766 .99767 9.99769 .99771 9.99773 9.99774 .99774 .99775 .99776 .99776 .99778 .99778 .99778 .99778 .99780 .99781 9.99782 .99783 .99786 .99786 .99786	171° 0.99451 .99453 .99455 .99457 0.99459 .99461 .99466 0.99468 .99470 .99472 .99474 0.99480 33m 171° 0.99483 .99485 .99489 0.99491 .99491 .99493 .99491 .99493 .99497 0.99491 .99503 .99507 .99507	11h 30m 9.99814 9.99815 9.99815 9.99816 9.99817 9.99820 9.99821 9.99821 9.99824 9.99825 12h 11h 31m 9.99828 9.99828 9.99829 9.99830 9.9831 9.99832 9.99832 9.99832 9.99832 9.99833 9.99836 9.99836 9.99836	172° 0.99572 .99574 .99576 .99576 .99580 .99582 .99584 .99585 0.99587 0.99593 0.99595 .99597 0.99598 29m 172° 0.99600 .99602 .99604 .99606 0.99608 .99611 .99613 0.99615 .99618 .99620 0.99622 .39624 .99626 0.99626	11h 34m 9.99860 .99861 .99862 .99863 .99864 .99865 9.99867 .99869 .99869 .99870 .99871 .99871 .99873 .99874 .99874 .99875 .99876 .99876 .99878 .99878 .99878 .99878 .99878 .99878 .99878 .99878 .99878 .99880 .99880 .99880 .99880 .99881	173° 0.99679 .99680 .99682 .99684 0.99685 .99697 .99693 .99693 .99696 0.99692 0.99701 25m 173° 0.99703 .99704 .99706 0.99711 .99712 .99714 0.99715 .99717 .99719 .99722 .99723 .99723	11h 88m 9.99900 .99901 .99901 .99902 9.99902 .99904 .99905 .99906 .99906 .99906 9.99907 9.99909 .99911 9.99911 9.99912 .99912 .99913 9.99913 9.99913 9.99915 9.99915 9.99916 .99916 .99917	174° 0.99770 .99771 .99773 .99774 0.99775 .99778 .99780 0.99781 .99782 .99784 .99785 0.99789 21m 174° 0.99790 .99792 .99793 .99794 0.99796 .99799 0.99801 .99802 .99803 .99806 .99806	60 56 52 48 44 40 36 32 28 24 20 16 112 8 4 60 56 52 48 44 40 36 52 28 28 29 40 20 16 11 20 20 20 20 20 20 20 20 20 20 20 20 20

						Haversin	nes.					
		11h 40m	175°	11h 44m	176°	11h 48m	177°	11h 52m	178°	11h 56m	179°	
8		Log. Hav.			Nat. Hav.				Nat. Hav.	Log. Hav.		S
0	0	9.99917 $.99918$	0.99810	9.99947	0.99878	9.99970	0.99931	9.99987	0.99970	9.99997	0.99992	60
4 8	2	.99918	.99811	.99948	.99879	.99971	.99932	.99987	.99971	.99997 .99997	.99993 .99993	56 52
12	3	.99919	.99814	.99948	.99881	.99971	.99934	.99987	.99971	.99997	.99993	48
16	4	9.99919	0.99815	9.99949	0.99882	9.99972	0.99934	9.99988	0.99972	9.99997	0.99994	44
20	5	.99920	.99816	.99949	.99883	.99972	.99935	.99988	.99972	.99997	.99994	40
24	6	.99921	.99317	.99950	.99884	.99972	.99936	.99988	.99973	.99997	.99994	36
28	7	.99921	.99819	.99950	.99885	.99973	.99937	.99988	.99973	.99997	.99994	32
32 36	8	9.99922	0.99820 .99821	9.99951	0.99886 .99887	9.99973	0.99937 .99938	9.99988	0.99973 .99974	9.99998	0.99994 .99995	28
40	10	.99923	.99822	.99951	.99888	.99973	.99939	.99989	.99974	.99998	.99995	24 20
44	11	.99923	.99823	.99952	.99889	.99974	.99940	.99989	.99975	.99998	.99995	16
48	12	9.99924	0.99825	9.99952	0.99890	9.99974	0.99940	9.99989	0.99975	9.99998	0.99995	12
52	13	.99924	.99826	.99953	.99891	.99974	.99941	.99989	.99976	.99998	.99995	8
56	14	9.99925	0.99827	9.99953	0.99892	9.99975	0.99942	9.99990	0.99976	9.99998	0.99996	4
		12h		-	15m	The state of the s	11m	STREET, SQUARE, SQUARE	7m		gm	
S	′	11h 41m	175°	11h 45m	176°	11h 49m	177	11h 53m	178°	11h 57m	179°	S
0	15	9.99925	0.99828	9.99953	0.99893	9.99975	0.99942	9.99990	0.99977	9.99998	0.99996	60
8	16 17	.99926 .99926	.99829 .99831	.99954 .99954	.99894 .99895	.99975 .99976	.99943	.99990 .99990	.99977	.99998 .99998	.99996 .99996	56
12	18	.99926	.99832	.99954	.99896	.99976	.99944	.99990	.99978	.99998	.99996	52 48
16	19	9.99927	0.99833	9.99955	0.99897	9.99976	0.99945	9.99991	0.99978	9.99998	0.99996	44
20	20	.99928	.99834	.99955	.99898	.99976	.99946	.99991	.99979	.99999	.99997	40
24	21	.99928	.99835	.99956	.99899	.99977	.99947	.99991	.99979	.99999	.99997	36
28	22	.99929	.99837	.99956	.99900	.99977	.99947	.99991	.99980	.99999	.99997	32
32 36	23 24	9.99929	0.99838 .99839	9.99957	0.99900 .99901	9.99977 .99978	0.99948	9.99991 $.99992$.99980	9.99999	0.99997	28 24
40	25	.99931	.99840	.99958	.99902	.99978	.99949	.99992	.99981	.99999	.99997	20
44	26	.99931	.99841	.99958	.99903	.99978	.99950	.99992	.99981	.99999	.99998	16
48	27	9.99932	0.99842	9.99958	0.99904	9.99978	0.99950	9.99992	0.99982	9.99999	0.99998	12
452	28	.99932	.99844	.99959	.99905	.99979	.99951	.99992	.99982	.99999	.99998	8
56	29	9.99933	0.99845	9.99959	0.99906	9.99979	0.99952	9.99992	0.99982	9.99999	0.99998	4
8	,	12h 11h 42m	18 ^m	12h 11h 46m	14 ^m	12h 11h 50m	10 ^m	12h 54m	178°	12h 11h 58m	2m 179°	8
0	30	9.99933	0.99846	9.99959	0.99907	9.99979	0.99952	$\frac{110.94m}{9.99993}$	0.99983	9.99999	0.99998	60
4	31	.99934	.99847	.99960	.99908	.99980	.99953	.99993	.99983	.99999	.99998	56
8	32	.99934	.99848	.99960	.99909	.99980	.99954	.99993	.99984	.99999	.99998	52
12	33	.99935	.99849	.99961	.99909	.99980	.99954	.99993	.99984	.99999	.99998	
16	34											48
20		9.99935	0.99850	9.99961	0.99910	9.99980	0.99955	9.99993	0.99984	9.99999	0.99999	44
	35	9.99935 .99935	.99851	.99961	.99911	.99981	.99956	.99993	.99985	9.99999	0.99999 .99999	44 40
24	35 36	9.99935 .99935 .99936	.99851 .99853	.99961 .99962	.99911 .99912	.99981 .99981	.99956 .99956	.99993 .99994	.99985 .99985	9.99999 .99999 9.99999	0.99999 .99999 .99999	44 40 36
24 28	35	9.99935 .99935	.99851	.99961	.99911	.99981	.99956	.99993	.99985	9.99999	0.99999 .99999	44 40 36 32
24	35 36 37 38 39	9.99935 .99935 .99936 .99936 9.99937 .99937	.99851 .99853 .99854 0.99855 .99856	.99961 .99962 .99962 9.99963 .99963	.99911 .99912 .99913 0.99914 .99915	.99981 .99981 .99981 9.99981 .99982	.99956 .99957 0.99957 .99958	.99993 .99994 .99994 9 .99994 .99994	.99985 .99985 .99986 0.99986	9.99999 .99999 9.99999 0.00000 0.00000	0.99999 .99999 .99999 0.99999 .99999	44 40 36 32 28 24
24 28 32 36 40	35 36 37 38 39 40	9.99935 .99935 .99936 .99936 9.99937 .99938	.99851 .99853 .99854 0.99855 .99856 .99857	.99961 .99962 .99962 9.99963 .99963	.99911 .99912 .99913 0.99914 .99915	.99981 .99981 .99981 9.99981 .99982 .99982	.99956 .99956 .99957 0.99957 .99958 .99959	.99993 .99994 .99994 9.99994 .99994	.99985 .99985 .99986 .99986 .99986	9.99999 9.99999 0.00000 0.00000 .00000	0.99999 .99999 .99999 0.99999 .99999 .99999	44 40 36 32 28 24 20
24 28 32 36 40 44	35 36 37 38 39 40 41	9.99935 .99935 .99936 .99936 9.99937 .99938 .99938	.99851 .99853 .99854 0.99855 .99856 .99857 .99858	.99961 .99962 .99962 9.99963 .99963 .99964	.99911 .99912 .99913 0.99914 .99915 .99915	.99981 .99981 .99981 9.99981 .99982 .99982 .99982	.99956 .99956 .99957 0.99957 .99958 .99959	.99993 .99994 .99994 .99994 .99994 .99994	.99985 .99985 .99986 .99986 .99986 .99987	9.99999 9.99999 0.00000 0.00000 .00000 .00000	0.99999 .99999 .99999 0.99999 .99999 .99999	44 40 36 32 28 24 20 16
24 28 32 36 40 44 48	35 36 37 38 39 40 41 42	9.99935 .99935 .99936 .99937 .99937 .99938 .99938 9.99939	.99851 .99853 .99854 0.99855 .99856 .99857 .99858 0.99859	.99961 .99962 .99962 9.99963 .99963 .99964 9.99964	.99911 .99912 .99913 0.99914 .99915 .99916 0.99917	.99981 .99981 .99981 9.99981 .99982 .99982 .99982 9. 99983	.99956 .99956 .99957 0.99957 .99958 .99959 0.99960	.99993 .99994 .99994 .99994 .99994 .99994 .99994	.99985 .99985 .99986 .99986 .99986 .99987 0.99987	9.99999 .99999 9.99999 0.00000 .00000 .00000 .00000 0.00000	0.99999 .99999 .99999 0.99999 .99999 .99999 0.99999	44 40 36 32 28 24 20 16
24 28 32 36 40 44 48 52	35 36 37 38 39 40 41 42 43	9.99935 .99936 .99936 .99937 .99937 .99938 .99938 .99939	.99851 .99853 .99854 0.99855 .99856 .99857 .99858 0.99859 .99860	.99961 .99962 .99962 9.99963 .99963 .99964 9.99964	.99911 .99912 .99913 0.99914 .99915 .99916 0.99917 .99918	.99981 .99981 .99981 9.99981 .99982 .99982 .99983 .99983	.99956 .99956 .99957 0.99957 .99958 .99959	.99993 .99994 .99994 .99994 .99994 .99994	.99985 .99985 .99986 .99986 .99986 .99987	9.99999 9.99999 0.00000 0.00000 .00000 .00000	0.99999 .99999 .99999 0.99999 .99999 .99999	44 40 36 32 28 24 20 16 12 8
24 28 32 36 40 44 48	35 36 37 38 39 40 41 42	9.99935 .99935 .99936 .99937 .99937 .99938 .99938 9.99939	.99851 .99853 .99854 0.99855 .99856 .99857 .99859 .99860 0.99861	.99961 .99962 .99962 9.99963 .99963 .99964 9.99964 9.99964 9.99965	.99911 .99912 .99913 0.99914 .99915 .99916 0.99917	.99981 .99981 .99981 9.99981 .99982 .99982 .99983 .99983 9.99983	.99956 .99957 0.99957 .99958 .99959 .99959 0.99960	.99993 .99994 .99994 .99994 .99994 .99994 .99994 .99995 9.99995	.99985 .99985 .99986 .99986 .99986 .99987 0.99987	9.99999 99999 9.99999 0.00000 0.00000 .00000 0.00000 0.00000 0.00000	0.99999 .99999 .99999 0.99999 0.99999 .99999 0.99999	44 40 36 32 28 24 20 16
24 28 32 36 40 44 48 52	35 36 37 38 39 40 41 42 43	9.99935 .99936 .99936 .99937 .99937 .99938 .99938 9.99939 9.99940	.99851 .99853 .99854 0.99855 .99856 .99857 .99859 .99860 0.99861	.99961 .99962 .99962 9.99963 .99963 .99964 9.99964 9.99964 9.99965	.99911 .99912 .99913 0.99914 .99915 .99916 0.99917 .99918 0.99919	.99981 .99981 .99981 9.99981 .99982 .99982 .99983 .99983 9.99983	.99956 .99957 0.99957 .99958 .99959 0.99960 .99960	.99993 .99994 .99994 .99994 .99994 .99994 .99994 .99995 9.99995	.99985 .99985 .99986 .99986 .99986 .99987 0.99987	9.99999 99999 9.99999 0.00000 0.00000 .00000 0.00000 0.00000 0.00000	0.99999 .99999 .99999 0.99999 .99999 .99999 0.99999 0.99999	44 40 36 32 28 24 20 16 12 8
24 28 32 36 40 44 48 52 56	35 36 37 38 39 40 41 42 43	9.99935 .99935 .99936 .99936 9.99937 .99938 .99938 .99939 9.99940 12h	.99851 .99853 .99854 0.99855 .99856 .99857 .99859 .99860 0.99861	.99961 .99962 .99963 .99963 .99963 .99964 9.99964 9.99964 9.99965 12h	.99911 .99912 .99913 0.99914 .99915 .99915 .99916 0.99917 .99918 0.99919	.99981 .99981 .99981 .99982 .99982 .99982 .99983 .99983 .99983	.99956 .99957 0.99957 .99958 .99959 0.99960 0.99961 9m	.99993 .99994 .99994 .99994 .99994 .99994 .99995 9.99995 12h	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 .99987 0.99988	9.99999 99999 9.99999 0.00000 0.00000 .00000 .00000 0.00000 0.00000 0.00000	0.99999 .99999 .99999 0.99999 .99999 0.99999 0.99999 0.99999 0.99999 179° 1700000	44 40 36 32 28 24 20 16 12 8 4
24 28 32 36 40 44 48 52 56	35 36 37 38 39 40 41 42 43 44	9.99935 .99935 .99936 .99936 9.99937 .99938 .99938 9.99939 9.99940 12h 11h 43m 9.99940 .99941	.99851 .99853 .99854 0.99855 .99856 .99857 .99859 0.99860 0.99861 1778 175° 0.99863 .99864	.99961 .99962 .99962 9.99963 .99963 .99964 9.99964 9.99965 12h 11h 47m 9.99965	.99911 .99912 .99913 0.99914 .99915 .99916 0.99917 .99918 0.99919 13m 176° 0.99920 .99920	.99981 .99981 .99981 .99982 .99982 .99982 .99983 .99983 .99983 .12h .99983 .99983 .99983	.99956 .99956 .99957 0.99957 .99958 .99959 0.99960 0.99961 9m 177° 6.99961 .90962	$\begin{array}{c} .99993 \\ .99994 \\ .99994 \\ .99994 \\ .99994 \\ .99994 \\ .99995 \\ \hline $.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .578 178°	9.99999 9.99999 0.00000 0.00000 .00000 .00000 0.00000 0.00000 0.00000 127 11h 59m 0.00000	0.9999 .9999 .9999 0.9999 .9999 .9999 0.9999 0.9999 b Im 179° 1.00000 .00000	44 40 36 32 28 24 20 16 12 8 4
24 28 32 36 40 44 48 52 56 8	35 36 37 38 39 40 41 42 43 44 45 46 47	9.9935 .9935 .9936 .9936 9.9937 .9937 .9938 9.9939 9.9940 12h 11h 43m 9.99940 .99941	.99851 .99853 .99854 0.99855 .99856 .99857 .99859 0.99861 1777 175° 0.99863 .99864 .99865	.99961 .99962 .99962 .99963 .99963 .99964 .99964 .99964 .99965 .12h .11h 47m .99965 .99965 .99966	.99911 .99912 .99913 0.99914 .99915 .99916 0.99917 .99918 0.99919 13m 176° 0.99920 .99920	.99981 .99981 .99981 9.99982 .99982 .99983 .99983 9.99983 12h 11h 51m 9.99983 .99983	.99956 .99957 0.99957 .99958 .99959 0.99960 .99961 9m 177° 6.99961 .90962 .99963	99993 99994 99994 99994 99994 99994 99995 12h 11h 55m 99995 99995 99995	.99985 .99985 .99986 .99986 .99987 0.99987 0.99988 2.5m 178° 0.99988 .99988 .99988	9.99999 .99999 9.99999 9.00000 0.00000 .00000 .00000 0.00000 0.00000 127 11h 59m 0.00000 .00000	0.9999 .9999 .9999 0.9999 .9999 .9999 .9999 0.9999 0.9999 179° 1.0000 .0000 .00000	44 40 36 32 28 24 20 16 12 8 4
24 28 32 36 40 44 48 52 56 s 0 4 8 12	35 36 37 38 39 40 41 42 43 44 45 46 47 48	9.99935 .99935 .99936 .99936 9.99937 .99937 .99938 9.99939 9.99940 12h 11h 43m 9.99940 .99941 .99941	.99851 .99853 .99854 0.99855 .99856 .99857 .99859 0.99861 1777 175° 0.99863 .99864 .99865 .99866	.99961 .99962 .99962 .99963 .99963 .99963 .99964 .99964 9.99965 12h 11h 47m 9.99965 .99966	.99911 .99912 .99913 .99914 .99915 .99916 0.99919 13m 176° 0.99920 .99920 .99921 .99922	.99981 .99981 .99981 .99982 .99982 .99982 .99983 .99983 .99983 .99983 .99983 .99983 .99984	.9956 .9956 .9957 0.9957 .9958 .9959 0.9960 0.9961 9m 177° 6.9961 .9962 .9963	99993 99994 99994 99994 99994 99994 99995 99995 12h 11h 55m 99995 99995 99995 99995	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .578 178° 0.99988 .99988 .99989	9.99999 .99999 9.99999 9.99999 0.00000 0.00000 .00000 0.00000 0.00000 127 11h 59m 0.00000 .00000 .00000	0.9999 .9999 .9999 0.9999 .9999 .9999 0.9999 0.9999 b 1m 179° 1.0000 .0000 .0000	44 40 36 32 28 24 20 16 12 8 4 56 52 48
24 28 32 36 40 44 48 52 56 s 0 4 8 12 16	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	9.99935 .99935 .99936 9.9937 .99937 .99938 9.99939 9.99940 12h 11h 43m 9.99940 .99941 .99941 .99942 9.99942	.99851 .99853 .99854 0.99856 .99857 .99858 0.99860 0.99861 17m 175° 0.99863 .99864 .99865 0.99866 0.99867	.99961 .99962 .99962 .99963 .99963 .99963 .99964 9.99965 12h 11h 47m 9.9965 .99966 9.9966 9.9966	.99911 .99912 .99913 .99914 .99915 .99916 0.99917 .99918 0.99919 13m 176° 0.99920 .99920 .99921 .99921	.99981 .99981 .99981 .99982 .99982 .99983 .99983 .99983 .12h .99983 .99983 .99983 .99984 .99984	.9956 .9956 .9957 0.9957 .9958 .9959 .9960 0.9960 0.9961 9m 177° 6.9961 .9962 .9963 .9963	99993 99994 99994 99994 99994 99995 99995 12h 11h 55m 99995 99995 99995 99995 99995	.99985 .99985 .99985 .99986 .99986 .99987 0.99987 0.99988 .99988 .99988 .99989 0.99989	9.99999 .99999 9.99999 9.000000 0.00000 .00000 0.00000 0.00000 0.00000 129 11h 59m 0.00000 .00000 .00000 0.00000	0.99999 .99999 .99999 0.99999 .99999 .99999 0.99999 0.99999 179° 1.00000 .00000 .00000	44 40 36 32 28 24 20 16 12 8 4 56 52 48 44
24 28 32 36 40 44 48 52 56 s 0 4 8 12 16 20	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	9.99935 .99935 .99936 9.9936 9.99937 .99938 .99938 9.99939 9.99940 12h 11h 43m 9.99941 .99941 .99941 9.99942 9.99943	.99851 .99853 .99854 0.99855 .99856 .99859 .99860 0.99861 1778 0.99863 .99864 .99864 0.99864 .99865 .99866 0.99867	.99961 .99962 .99962 .99963 .99963 .99964 9.99964 9.99965 12h 11h 47m 9.99965 .99966 9.99966 9.99966	.99911 .99912 .99913 0.99914 .99915 .99916 0.99919 13m 176° 0.99920 .99921 .99921 0.99923 0.99923	.99981 .99981 .99981 .99982 .99982 .99983 .99983 .99983 .99983 .99984 .99984 .99984	.9956 .9956 .9957 0.9957 .9958 .9959 0.9960 0.9961 9m 177° 6.9961 .9962 .9963	99993 99994 99994 99994 99994 99994 99995 99995 12h 11h 55m 99995 99995 99995 99995	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .578 178° 0.99988 .99988 .99989	9.99999 .99999 9.99999 9.99999 0.00000 0.00000 .00000 0.00000 0.00000 127 11h 59m 0.00000 .00000 .00000	0.9999 .9999 .9999 0.9999 .9999 .9999 0.9999 0.9999 b 1m 179° 1.0000 .0000 .0000	44 40 36 32 28 24 20 16 12 8 4 56 52 48
24 28 32 36 40 44 48 52 56 8 12 12 20 24 28	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	9.99935 .99935 .99936 9.9937 .99937 .99938 9.99939 9.99940 12h 11h 43m 9.99940 .99941 .99941 .99942 9.99942	.99851 .99853 .99854 0.99856 .99857 .99858 0.99860 0.99861 17m 175° 0.99863 .99864 .99865 0.99866 0.99867	.99961 .99962 .99963 .99963 .99963 .99964 9.99964 9.99965 <u>12h</u> 11h 47m 9.99965 .99966 .99966 9.99966 .99966 .99967 .99967	.99911 .99912 .99913 .99914 .99915 .99916 0.99919 13m 176° 0.99920 .99921 .99922 0.99921 .99924 .99924	.99981 .99981 .99981 .99982 .99982 .99982 .99983 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99984 .99985	.9956 .9956 .9957 .9957 .9958 .9959 .9960 .9960 .9961 .976 .9961 .9963 .9963 .9963 .9964 .9964 .9965	99993 99994 99994 99994 99994 99995 99995 12h 11h 55m 99995 99995 99995 99995 99995 99995 99996 99996	.99985 .99985 .99986 .99986 .99987 0.99987 0.99988 .99988 .99988 .99989 .99989 0.99989 .99990	9.99999 .99999 9.99999 9.99999 9.00000 0.00000 .00000 0.00000 0.00000 127 11h 59m 0.00000 .00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.9999 .9999 .9999 0.9999 .9999 .9999 0.9999 0.9999 179° 1.0000 .0000 .0000 .0000 .0000 .0000 .0000	44 40 36 32 28 24 20 16 12 8 4 4 5 52 48 44 40 36 52 48 44 40 36 32 48 48 48 48 48 48 48 48
24 28 32 36 40 44 43 52 56 8 12 16 20 24 28 32	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	9.99935 .99935 .99936 .99937 .99937 .99938 9.99939 9.99940 12h 11h 43m 9.99941 .99941 .99942 9.99943 .99943 .99943 .99943	.99851 .99853 .99854 0.99856 .99857 .99858 0.99859 .99861 1777 175° 0.99863 .99864 .99866 0.99867 .99868 .99869 0.99870 0.99871	.99961 .99962 .99963 .99963 .99963 .99964 9.99964 9.99965 12h 11h 47m 9.99965 .99966 .99966 9.9966 9.9966 9.9966 9.9968	.99911 .99912 .99913 .99915 .99915 .99916 0.99919 13m 176° 0.99920 .99920 .99921 .99922 0.99923 .99924 .99924 .99925 0.99926	.99981 .99981 .99981 .99982 .99982 .99982 .99983 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99984 .99985 .99985	.99956 .99956 .99957 .99957 .99958 .99959 .99960 .99961 .99961 .99963 .99963 .95964 .99964 .99965 .99965 .99965	99993 99994 99994 99994 99994 99995 99995 12h 11h 55m 99995 99995 99995 99995 99995 99995 99996 99996 99996	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .99988 .99988 .99989 0.99989 0.99990 .99990	9.99999 .99999 9.99999 9.99999 9.00000 0.00000 .00000 0.00000 0.00000 127 11h 59m 0.00000 .00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000	44 40 36 32 28 24 20 16 12 8 4 4 4 4 4 4 4 4 4 4
24 28 32 36 40 44 48 52 56 8 0 4 8 12 16 20 24 28 32 36	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54	9.99935 .99935 .99936 .99936 9.99937 .99938 .99938 9.99939 9.99940 12h 11h 43m 9.99941 .99941 .99941 .99942 .99943 .99943 .99943 .99943 .99944 .99944	.99851 .99853 .99854 0.99856 .99857 .99858 0.99860 0.99861 177 175° 0.99863 .99864 .99865 0.99867 .99868 .99869 .99869	.99961 .99962 .99963 .99963 .99963 .99964 9.99965 12h 11h 47m 9.9965 .99966 .99966 9.9966 9.9967 .99967 .99968 9.9968	.99911 .99912 .99913 .99915 .99915 .99916 0.99919 13m 176° 0.99920 .99921 .99921 .99922 0.99923 .99924 .99924 .99925 0.99926	.99981 .99981 .99981 .99982 .99982 .99983 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99985 .99985 .99985	.99956 .99956 .99957 .99957 .99959 .99959 0.99960 0.99961 9m 177° 0.99961 .99963 .99963 0.9964 .99964 .99965 .99965	99993 99994 99994 99994 99994 99995 12h 11h 55m 99995 99995 99995 99995 99995 99995 99996 99996 99996 99996	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .99989 .99989 0.99989 .99990 .99990 0.99991	9.99999 .99999 9.99999 9.99999 0.00000 0.00000 .00000 .00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .90000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000	44 40 36 32 28 24 20 16 12 8 4 4 40 56 52 48 44 40 36 32 32 48 44 40 40 40 40 40 40 40
24 28 36 40 44 48 52 56 8 12 12 24 28 32 36 40	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	9.9935 .9935 .9936 .99936 9.9937 .99937 .99938 9.99939 9.99940 .12h .11h 43m 9.99941 .99941 .99942 9.99942 9.99943 .99943 .99943 .99944 .99944 .99945	.99851 .99853 .99856 .99856 .99857 .99850 .99860 0.99861 1778 175° 0.99863 .99864 .99866 0.99866 0.99866 0.99869 .99871 .99872	99961 99962 999963 99963 99964 99964 99965 12h 11h 47m 99965 99966 99966 99966 99966 99967 99967 99968 99968 99968	.99911 .99912 .99913 0.99914 .99915 .99916 0.99919 13m 176° 0.99920 .99921 .99922 0.99923 .99924 .99924 .99926 0.99926 .99926	.99981 .99981 .99981 .99982 .99982 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99985 .99985 .99985 .99985	.99956 .99956 .99957 .99958 .99959 .99959 0.9960 0.9961 9m 177° 0.9961 .9962 .9963 .9963 0.9964 .9965 .9965 0.9966	99993 99994 99994 99994 99994 99995 12h 11h 55m 99995 99995 99995 99995 99995 99996 99996 99996 99996	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .99989 .99989 0.99988 .99989 0.99990 .99990 .99990 .99991 .99991	9.99999 .99999 0.00000 0.00000 .00000 .00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.99999	44 40 36 32 28 24 20 16 12 8 4 4 5 56 52 48 44 40 36 32 28 24 20 16 52 48 40 56 56 57 67 67 67 67 67 67 67 6
24 28 32 36 40 44 48 52 56 8 12 116 20 24 28 32 36 40 44 44 44 48 52 56	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 55 56	9.9935 .99935 .99936 .99937 .99937 .99938 .99939 .99940 12h 11h 43m 9.99941 .99941 .99941 .99942 .99943 .99943 .99944 .99944 .99944 .99944 .99945	.99851 .99853 .99856 .99856 .99857 .99859 .99860 0.99861 1776 0.99863 .99864 .99865 .99866 0.99867 .99869 .99872 .99873 .99873	99961 99962 99962 99963 99963 99963 99964 999965 12h 11h 47m 99965 99966 99966 99966 99966 99967 99968 99968 99968 99968 99969	.99911 .99912 .99913 .99914 .99915 .99916 0.99919 13m 176° 0.99920 .99921 .99922 0.99924 .99924 .99924 .99926 .99927 .99928	.99981 .99981 .99981 .99982 .99982 .99982 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99984 .99985 .99985 .99985 .99986	.9956 .9956 .9957 .9957 .9958 .9959 0.9960 0.9961 9m 177° 6.9961 .9963 .9963 .9963 0.5364 .9964 .9965 0.9966 .9966	99993 99994 99994 99994 99994 99995 99995 12h 11h 55m 99995 99995 99995 99995 99995 99996 99996 99996 99996 99996	.99985 .99985 .99986 .99986 .99987 0.99987 0.99988 .99988 .99988 .99989 0.99989 0.99990 0.99991 .99991	9.99999 9.99999 9.99999 9.99999 9.00000 0.00000 0.00000 0.00000 0.00000 127 11h 59m 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .90000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000	44 40 36 32 28 24 20 16 12 8 4 4 56 52 48 44 40 36 32 28 28 28 24 20 16 56 52 48 48 48 48 48 48 48 48
24 28 32 36 40 44 43 52 56 8 0 4 12 16 20 22 36 40 42 8 8 8 12 14 44 8 8 8 12 14 16 16 16 16 16 16 16 16 16 16 16 16 16	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	9.9935 .9935 .9936 .99936 9.9937 .99937 .99938 9.99939 9.99940 .12h .11h 43m 9.99941 .99941 .99942 9.99942 9.99943 .99943 .99943 .99944 .99944 .99945	.99851 .99853 .99856 .99856 .99857 .99850 .99860 0.99861 1778 175° 0.99863 .99864 .99866 0.99866 0.99866 0.99869 .99871 .99872	99961 99962 999963 99963 99964 99964 99965 12h 11h 47m 99965 99966 99966 99966 99966 99967 99967 99968 99968 99968	.99911 .99912 .99913 0.99914 .99915 .99916 0.99919 13m 176° 0.99920 .99921 .99922 0.99923 .99924 .99924 .99926 0.99926 .99926	.99981 .99981 .99981 .99982 .99982 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99985 .99985 .99985 .99985	.99956 .99956 .99957 .99958 .99959 .99959 0.9960 0.9961 9m 177° 0.9961 .9962 .9963 .9963 0.9964 .9965 .9965 0.9966	99993 99994 99994 99994 99994 99995 12h 11h 55m 99995 99995 99995 99995 99995 99996 99996 99996 99996	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .99989 .99989 0.99988 .99989 0.99990 .99990 .99990 .99991 .99991	9.99999 .99999 0.00000 0.00000 .00000 .00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.99999	44 40 36 32 28 24 20 16 12 8 4 4 5 56 52 48 44 40 36 32 28 24 20 16 52 48 40 56 56 57 67 67 67 67 67 67 67 6
24 28 32 36 40 44 48 52 56 8 12 20 24 28 32 32 40 44 48 55 56 56 56 56 56 56 56 56 56 56 56 56	35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 55 51 52 53 55 56 57	9.99935 .99935 .99936 9.99937 .99937 .99938 9.99939 9.99940 12h 11h 43m 9.99941 .99941 .99942 .99943 .99943 .99943 9.99944 .99944 .99945 9.99945 9.99946	.99851 .99853 .99854 0.99856 .99856 .99858 0.99859 .99861 1776 0.99863 .99864 .99865 .99866 0.99867 .99868 .99869 0.99871 .99872 .99873 0.99874 0.99874	.99961 .99962 .99963 .99963 .99963 .99964 9.99965 12h 11h 47m 9.99965 .99966 .99966 9.9966 9.9966 9.9967 .99968 9.9968 .99969 .99969 9.9969 9.99969	.99911 .99912 .99913 0.99914 .99915 .99916 0.99917 .99918 0.99919 13m 176° 0.99920 .99921 .99921 0.99923 .99924 .99924 .99925 0.99928 0.99928 0.99928 0.99929 0.99929 0.99928	.99981 .99981 .99981 .99982 .99982 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99985 .99985 .99985 .99986 .99986 .99986 .99986	.99956 .99956 .99957 .99957 .99959 .99959 0.99960 0.99961 9m 177° 0.99961 .99962 .99963 0.93964 .99965 .99965 0.99966 .99966 .99967 .99967 .99967 .99969	99993 99994 99994 99994 99994 99995 12h 11h 55m 99995 99995 99995 99995 99996 99996 99996 99996 99996 99996 99996 99996 99996 99996 99996 99996 99996	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .99989 .99989 .99989 .99989 .99990 .99990 .99991 .99991 .99991 .99991 .99991 .99992	9.99999 .99999 0.00000 0.00000 .00000 0.00000	0.99999	44 40 36 32 28 24 20 16 12 48 44 40 36 32 48 44 40 36 32 28 24 20 16 12 16 16 16 16 16 16 16 16
24 28 32 36 40 44 48 52 56 8 0 4 8 12 116 20 24 28 32 36 40 40 44 48 48 52 56	35 36 37 38 39 40 41 42 44 44 45 46 47 49 50 51 55 55 56 57 58	9.99935 .99935 .99936 .99936 9.99937 .99938 9.99939 9.99940 12h 11h 43m 9.99940 .99941 .99941 .99942 9.99943 .99943 .99943 .99944 .99945 .99945 9.99946	.99851 .99853 .99856 .99856 .99857 .99859 .99860 0.99861 1776 0.99863 .99865 .99866 0.99867 .99869 .99870 0.99871 .99873 .99873 .99874 0.99875 .99878	.99961 .99962 .99963 .99963 .99963 .99964 9.99965 12h 11h 47m 9.9965 .99966 .99966 .99966 .99967 .99968 .99968 .99968 .99968 .99969 .99969 .99969 .99969	.99911 .99912 .99913 .99914 .99915 .99916 0.99919 13m 176° 0.99920 .99921 .99922 0.99923 .99924 .99924 .99924 .99928 0.99928 0.99929 0.99929	.99981 .99981 .99981 .99982 .99982 .99982 .99983 .99983 .99983 .99983 .99984 .99984 .99984 .99985 .99985 .99985 .99986 .99986	.9956 .9956 .9957 .9957 .9958 .9959 0.9960 0.9961 9m 177° 6.9961 .9963 .9963 0.9364 .9964 .9964 .9965 .9966 .99969 .99969	99993 99994 99994 99994 99994 99995 99995 12h 11h 55m 99995 99995 99995 99995 99996 99996 99996 99996 99996 99996 99996 99997	.99985 .99985 .99986 .99986 .99986 .99987 0.99987 0.99988 .99988 .99988 .99989 0.99989 0.99990 .99991 .99991 .99991 .99991	9.99999 .99999 9.99999 9.99999 9.00000 0.00000 .00000 0.00000	0.99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .99999 .90000 .00000	44 40 36 32 28 24 20 16 52 56 52 48 44 40 36 32 32 28 24 20 16 12 16 16 16 16 16 16 16 16

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TABLE 46.

					HE	GHT OF	THEE	YE,	*****			
0 1	8 F	eet.	9 F	eet.	10 F	eet.	11 F	'eet.	12 F	eet.	13 F	eet.
OBS. ALT.	Sun's Corr. (+)	* Star's Corr. (-)	⊙ Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 10 00 20 40 11 00 20 40 11 00 20 40 11 00 20 40 11 00 12 00 13 00 13 00 15 00 16 00 17 00 18 00 20 00 20 00 20 00 40 01 50 00 50	5 29 5 39 5 59 6 08 6 26 6 34 6 42 6 50 7 7 11 7 18 8 23 8 32 7 24 7 7 53 8 8 14 8 23 8 32 8 44 8 55 9 16 10 25 10 25 10 25 11 23 11 41 11 49 11 50 12 12 12 12 12 12 12 12 12 12 12 12 12 1	7 10 40 10 20 10 10 10 10 20 10 10 10 10 20 10 10 10 10 9 52 9 35 9 27 9 9 19 9 9 58 8 8 51 5 34 5 34 5 34 6 6 20 6 6 20 7 5 5 6 4 4 5 7 5 5 7 6 5 8 4 5 8 5 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	5 19 5 29 5 39 5 49 5 58 6 07 6 16 6 24 6 32 6 40 7 01 7 20 7 32 7 43 8 22 7 43 8 34 8 45 8 56 9 06 9 15 9 23 9 39 9 5 58 10 25 10 33 11 13 11 23 11 13 11 22 12 13 12 21 12 24 12 46 13 00 13 04	70 10 40 10 30 10 20 10 10 10 10 10 10 10 10 10 10 10 10 10	5 19 5 29 5 39 5 48 5 57 6 6 14 6 22 6 30 6 44 6 51 6 58 8 12 7 10 7 22 7 33 8 12 7 54 8 03 8 12 7 54 8 05 9 13 9 29 9 42 9 10 10 23 11 13 11 12 11 36 11 42 11 12 11 36 12 46 12 46 12 50 12 54	11 00 10 40 10 30 10 21 10 03 10 21 10 03 9 55 9 47 9 39 9 25 9 18 8 9 11 9 8 59 9 18 8 25 8 8 15 6 40 6 27 7 34 7 23 7 13 7 6 6 40 6 6 27 6 6 04 6 5 54 6 6 6 40 6 5 54 6 6 6 6 7 7 3 3 4 6 7 8 5 7 8 6 7 8	5 00 5 10 5 20 5 30 5 30 5 39 5 48 5 57 6 05 6 13 6 21 6 28 6 35 6 42 6 49 7 13 7 24 8 03 7 24 8 03 8 15 7 7 45 7 7 45 7 7 45 8 15 8 26 8 37 8 48 8 26 8 37 8 48 8 10 10 14 11 04 11 1 20 11 27 11 33 11 38 11 24 12 22 12 27 12 37 12 45 12 45	7 11 05 9 10 39 10 39 10 39 10 30 11 0 12 10 04 9 56 8 45 15 6 8 45 15 38 8 24 8 15 5 5 14 4 56 8 3 49 27 7 22 3 7 7 05 6 49 6 36 6 23 6 6 03 5 54 4 55 38 4 4 4 13 4 04 4 3 56 4 30 3 3 15	4 51 5 01 5 21 5 30 5 39 5 56 6 04 6 12 6 19 6 26 6 33 6 40 6 6 52 7 04 7 15 7 26 6 7 36 8 28 8 38 8 47 8 55 7 54 8 06 8 17 9 10 10 10 10 10 10 10 10 10 10 10 10 10 1	11 18 11 08 10 58 10 48 10 39 10 30 10 21 10 13 10 05 9 57 9 50 9 29 9 23 9 26 8 54 8 43 8 24 8 15 8 03 7 52 17 11 6 6 58 6 32 6 12 7 14 6 6 58 6 32 6 12 7 5 34 5 23 5 13 5 13 5 13 5 13 4 5 5 23 5 13 3 4 5 5 23 5 13 3 4 5 5 23 5 13 3 4 5 5 23 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 13 3 4 5 5 2 3 5 1 3 3 4 5 5 2 3 5 1 3 3 4 5 5 2 3 5 1 3 3 4 5 5 2 3 5 1 3 3 4 5 5 2 3 5 1 3 3 4 5 5 2 3 5 1 3 3 4 5 5 2 3 5 1 3 3 4 5 5 2 3 5 1 3 3 4 5 5 8 5 1 3 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	4 4 53 4 5 03 5 13 5 22 5 31 5 40 5 48 5 56 6 6 32 6 38 6 44 6 56 6 7 07 7 18 7 28 7 37 7 46 8 20 8 30 8 39 9 16 9 29 9 39 9 49 9 57 10 10 26 10 37 10 47 10 55 11 10 11 16 11 21 11 12 11 58 11 58 12 10 12 12 12 12 24 12 28	11 26 11 16 11 16 10 56 10 47 10 38 10 29 10 21 10 13 10 05 9 51 9 25 9 9 13 9 9 25 9 9 13 9 9 25 9 9 13 8 32 8 23 8 23 8 23 8 23 8 24 7 49 7 39 7 39 6 5 6 5 7 49 7 7 22 7 06 6 5 7 22 7 06 6 5 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4 7 4

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. for Sun's Alt.	1st to 15th 16th to 31st			+8 +4	0 -4	- 8 -11	-13 -14	-14 -13	-11 - 9	-5 -1	-	+11 +14	+16 +18

^{*} The corrections for the observed altitude of a Star or Planet involves the dlp and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16°. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table

TABLE 46.

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		HEIGHT OF THE EYE.										
0 4	14 F	eet.	15 F	eet.	16 I	eet.	17 I	eet.	18 F	eet.	19 H	eet.
OBS. ALT.	Sun's Corr. (+)	star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	⊙ Sun's Corr. (+)	star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 10 20 20 40 11 00 20 40 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 19 00 20 00 22 00 20	4 35 4 45 4 45 4 45 5 05 5 14 5 23 5 40 5 48 5 56 6 10 6 17 6 24 6 30 6 48 6 59 7 10 7 29 7 38 7 50 8 12 8 22 8 31 8 39 8 12 8 39 8 12 8 22 8 31 9 41 9 49 10 05 10 10 10 29 10 39 11 108 11 108 11 13 11 18 11 19 11 20 12 12 16 12 20 12 12 16 12 20	11 34 11 14 11 04 10 55 10 46 10 37 10 29 10 21 10 13 10 9 59 9 52 9 43 9 9 52 9 43 9 9 52 9 9 43 9 9 52 9 9 43 9 9 52 9 9 43 9 9 52 9 7 7 47 7 7 30 7 7 47 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	4 27 4 37 4 47 4 57 5 06 5 15 5 24 5 32 5 40 5 48 5 55 6 02 6 09 6 16 6 22 7 21 7 30 7 42 7 7 21 7 30 7 4 27 7 30 7 4 27 7 12 7 30 7 4 27 7 12 7 30 9 13 9 23 9 33 9 41 9 57 10 10 39 10 47 11 10 39 11 0 51 11 10 05 11 1 05 11 1 29 11 1 58 12 04 12 12 12 11 58 12 04 12 12 12 13 6 14 12 08 12 12 08 12 12 08 13 12 08 14 12 08 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16 1	11 42 11 32 11 12 11 03 10 29 10 21 10 07 10 29 10 21 10 07 10 00 9 53 9 47 10 29 9 18 8 8 39 9 9 17 8 48 8 8 27 7 7 09 6 56 6 46 6 6 27 7 7 38 8 7 55 5 5 29 5 5 21 4 4 09 4 4 09 4 4 09 4 3 58 3 3 48	4 20 4 30 4 40 4 50 4 59 5 17 5 25 5 33 5 41 5 55 6 02 6 09 6 15 6 33 6 44 7 23 7 35 6 44 7 23 7 34 6 45 7 14 7 23 7 35 8 24 8 53 9 06 9 16 8 24 8 53 9 06 9 10 10 10 10 10 10 10 10 10 10	11 49 11 29 11 19 11 10 11 01 10 52 10 44 10 36 10 21 10 14 10 07 10 00 9 54 8 9 25 9 10 11 10 9 54 8 8 23 8 12 7 7 29 7 7 16 7 7 03 6 6 34 8 8 12 7 7 16 7 7 03 6 6 34 8 6 05 8 10 8 10 8 10 8 10 8 10 8 10 8 10 8 10	4 13 4 23 4 43 4 43 4 43 4 43 4 43 5 10 5 18 5 26 6 5 34 1 5 48 5 55 6 02 6 14 6 26 6 37 7 16 7 28 8 00 8 09 9 19 9 27 9 43 9 50 10 46 10 51 10	11 56 11 46 11 26 11 17 11 08 10 59 10 51 10 43 10 35 10 21 10 14 10 07 10 01 9 55 9 43 9 32 9 21 10 14 10 07 9 55 9 43 8 39 8 39 8 19 8 8 09 8 8 09 8 8 09 8 7 52 7 36 6 41 6 25 6 12 5 17 5 18 6 19 6 19 6 19 7 10 7 10 8 10 8 10 8 10 8 10 8 10 8 10 8 10 8	4 16 4 16 4 16 4 26 4 36 4 4 5 5 19 5 27 5 34 5 41 5 48 5 55 6 01 6 07 6 19 6 30 7 29 7 21 7 43 8 02 9 20 9 36 8 39 8 52 9 20 9 36 9 49 10 10 18 10 28 10 33 11 108 11	12 03 11 53 11 43 11 33 11 24 11 15 11 06 10 58 10 50 10 42 10 35 10 21 10 14 10 02 9 50 9 39 9 21 8 37 7 30 7 7 59 7 7 59 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 6 48 6 32 6 19 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	3 59 4 19 4 29 4 38 4 47 4 56 5 04 5 12 5 20 5 34 5 41 5 45 6 34 5 5 41 5 45 6 6 12 6 23 6 34 6 5 3 7 02 7 14 6 53 7 7 25 7 36 7 46 7 53 8 32 8 45 8 55 9 13 9 9 42 9 9 42 8 10 10 32 10 32 10 32 10 32 11 36 11 40 11 44 11 26 11 30 11 40 11	12 10 11 20 11 50 11 31 11 13 11 13 11 05 10 28 10 21 10 28 10 21 10 28 10 25 9 16 9 35 9 16 9 9 7 9 46 9 35 9 16 9 35 9 36 9 37 9 44 9 5 9 5 9 5 9 5 9 6 9 6 9 7 9 7 9 7 9 7 9 7 9 7 9 7 9 7
		Day	of Month.	Jan.	Feb. M	ar. Apr.	May.	June. Jul	y. Aug.	Sept.	Oct. Nov	Dec.

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. For Sun's Alt.	1st to 15th 16th to 31st			+8 +4		-8 -11		-14 -13	-11 - 9	-5 -1		+11 +14	$^{''}_{+16}_{+18}$

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction aking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

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TABLE 46.

]				HE	GHT OF	THEE	YE.				
	20 F	eet.	21 F	eet.	22 F	eet.	23 F	eet.	24 F	eet.	25 F	eet.
OBS. ALT.	⊙ Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 50 9 00 20 40 11 00 20 40 11 00 30 12 00 13 00 14 00 15 00 16 00 17 00 18 00 20 20 20 20 20 30 12 00 20 00 22 00 24 00 25 00 26 00 27 00 28 00 29 00 20 0	3 52 4 12 4 12 4 12 4 22 4 31 4 49 4 57 5 05 5 13 5 20 5 27 5 34 5 41 5 47 7 5 53 6 05 6 16 6 27 7 7 18 8 25 8 38 8 48 8 58 8 58 9 22 9 35 9 46 10 12 10 12 10 12 11 07 11 14 11 19 11 29 11 33 11 37	12 17 11 38 11 29 11 12 11 04 11 12 11 04 11 12 11 04 11 12 11 04 12 10 35 10 28 10 28 10 10 16 10 04 9 53 9 42 9 9 23 9 14 9 02 8 51 10 28 8 13 7 7 7 11 7 21 1 7 7 11 7 11 7 11 7 1	3 466 4 166 4 166 4 25 4 34 4 51 4 59 5 07 5 14 4 59 5 07 5 14 5 28 5 35 5 41 7 5 59 6 10 6 21 7 7 12 3 7 33 7 42 7 50 8 19 8 32 8 52 8 52 8 52 8 53 9 16 9 29 9 9 40 9 9 50 9 10 10 10 10 10 10 10 10 10 10 10 10 10 1	12 13 12 13 11 23 11 153 11 144 11 13 11 10 11 10 25 11 11 10 10 10 28 10 10 10 10 29 59 9 20 9 08 8 57 10 10 10 9 59 9 48 8 27 8 19 20 9 08 8 57 7 27 7 7 7 7 7 7 7 7 7 17 7 17 7 17	3 39 3 49 3 49 4 18 4 27 5 00 5 14 4 44 4 52 5 00 5 5 14 6 24 6 33 6 42 6 54 7 05 6 26 6 35 7 26 7 35 7 35 8 45 8 45	12 30 12 10 12 10 11 51 11 12 51 11 13 31 11 25 11 10 25 10 48 10 41 10 35 10 17 10 06 9 55 10 17 10 06 9 27 9 15 9 36 9 27 9 15 8 8 43 8 8 26 6 25 5 6 17 6 6 09 6 6 02 5 5 51 5 5 34 5 5 5 5 5 5 5 5 5 5 6 4 6 6 4 6 6 4 6 6 6 7 7 5 7 7 4 4 4 6 7 4 4 6 7 5 7 6 7 6 7 6 7 7 7 4 4 6 7 7 8 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8	3 33 3 4 33 3 4 33 3 4 33 3 4 4 34 4 24 21 4 21	12 36 12 26 12 16 12 16 11 57 11 13 11 13 11 10 11 23 11 10 10 54 11 01 10 54 10 02 10 10 10 23 10 12 10 01 10 9 51 9 9 10 9 9 10 9 9 10 9 10 7 30 8 49 8 40 7 50 6 52 6 6 15 6 6 08 6 6 02 5 7 5 5 5 1 5 6 09 5 6 5 6 5 6 08 6 6 02 6 6 15 6 6 08 6 6 02 6 6 15 6 6 08 6 6 02 6 6 08 6 6 09 6 09	3 27 3 37 3 37 3 57 4 06 4 124 4 32 4 40 4 485 5 09 5 16 6 5 22 6 5 24 6 5 5 40 5 5 11 6 02 6 6 21 6 30 6 42 6 53 7 14 7 23 7 31 7 31 7 47 8 13 8 23 8 33 8 33 8 33 8 33 8 57 9 10 9 21 1 9 39 9 47 9 54 1 10 1 00 1 00 1 00 1 00 1 00 1 00 1 0	12 42 12 32 12 12 12 12 12 12 13 11 14 11 13 7 11 29 11 11 14 11 11 11 11 11 11 11 11 11 11	3 21 3 31 3 31 3 51 4 00 4 08 4 26 4 34 4 42 4 49 4 56 5 5 36 6 15 5 22 5 34 5 5 56 6 6 15 6 24 6 36 6 47 7 25 7 25 7 25 8 51 9 04 9 15 8 8 51 9 9 25 9 33 9 41 9 48 9 59 10 04 10 15 10 23 10 04 10 15 10 04 10 15 10 04 10 15 10 04 10 15 10 04 10 15 10 04 10 15 10 04 10 04 10 15 10 06 10	12 48 12 28 12 18 12 28 12 18 12 29 11 51 11 20 11 13 11 35 11 20 11 13 11 06 10 59 10 59

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. For Sun's Alt.			$^{''}_{+15}_{+12}$	+8 +4	0 -4		-13 -14	-14 -13		-5 -1	+3 +7	$^{''}_{+11}_{+14}$	$^{''}_{+16}_{+18}$

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

TABLE 46.

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				HE	IGHT OF	THE EY	E.			
	26 F	eet.	27 F	eet.	28 F	eet.	29 F	eet.	30 F	eet.
OBS. ALT.	⊙ Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	Star's Corr. (-)
6 30 40 50 7 00 10 20 20 7 30 40 50 8 00 8 00 10 20 40 11 00 12 00 40 11 00 12 00 40 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 19 00 22 00 24 00 22 00 24 00 25 00 26 00 27 00 28 00 20 00 20 00 20 00 21 00 22 00 24 00 25 00 26 00 27 00 28 00 28 00 30	3 15 3 25 3 35 3 45 3 54 4 4 20 4 28 4 36 4 43 4 50 4 57 5 04 5 16 5 28 5 39 5 50 6 00 6 09 6 18 6 30 6 41 7 02 7 11 7 35 7 48 8 01 8 21 8 29 8 45 8 58 9 9 19 9 27 9 35 9 42 9 42 9 42 9 53 9 10 9 10 10 10 10 10 10 10 10 10 10 10 10 10 1	12 54 12 44 12 34 12 24 12 15 12 06 11 57 11 49 11 11 13 11 12 11 05 10 53 10 41 10 59 10 53 10 41 10 09 10 00 9 51 9 39 9 28 9 17 9 07 8 58 8 34 8 21 8 28 7 7 89 7 23 7 10 6 59 6 49 6 49 6 49 6 5 6 20 6 15 6 09 5 5 8 5 8 5 8 5 8 5 8 5 8 6 8 7 5 8 8 5 8 6 6 20 8 6 15 8 6 26 8 7 5 8 8 5 8 6 26 8 7 5 8 8 5 8 7 48 8 7 5 8 8 5 8 6 5 8 7	3 09 3 19 3 29 3 39 3 48 3 57 4 06 4 14 4 22 4 30 4 37 4 44 4 51 5 52 5 33 5 54 6 03 6 12 6 24 6 35 6 46 6 56 7 05 7 13 7 29 7 42 7 55 8 15 8 23 8 39 8 15 8 23 8 39 9 13 9 21 9 29 9 36 9 42 9 47 9 52 10 03 10 11 10 18 10 24 10 36 10 40 10 46 10 50 10 54	13 00 12 50 12 40 12 30 12 21 12 12 13 11 55 11 47 11 39 11 32 11 25 11 18 11 11 11 05 10 47 10 36 10 25 10 15 10 06 9 57 9 34 9 23 9 13 9 04 8 27 7 29 7 16 6 39 6 26 6 21 6 04 5 55 5 47 5 56 6 39 6 26 6 21 6 04 6 55 6 6 21 6 04 7 54 7 55 8 6 26 8 7 55 8 7	3 04 3 14 3 24 3 34 3 43 3 52 4 01 4 09 4 17 4 25 4 32 4 39 4 46 4 53 4 59 5 55 5 17 5 28 5 39 5 58 6 07 6 19 6 30 6 41 7 00 7 08 7 24 7 37 7 50 8 10 8 18 8 34 8 58 9 16 9 24 9 31 9 37 9 47 9 58 10 06 10 13 10 06 10 13 10 06 10 13 10 06 10 13 10 49 10 49	13 05 12 55 12 45 12 35 12 26 12 17 12 08 12 00 11 52 11 44 11 37 11 30 11 23 11 16 11 04 10 52 10 41 11 00 10 20 10 11 10 02 9 39 9 28 9 18 9 09 9 39 9 28 9 18 8 32 7 59 7 50 7 34 7 7 10 7 6 26 6 6 00 5 52 5 5 38 5 32 5 5 11	2 58 3 08 3 18 3 28 3 37 3 46 3 55 4 03 4 11 4 19 4 26 4 33 4 40 4 47 4 53 4 59 5 11 5 22 5 33 5 52 6 01 6 13 6 24 6 35 6 45 7 7 18 7 31 7 44 7 54 8 04 8 12 8 28 8 41 7 54 8 04 8 12 8 28 9 02 9 10 9 18 9 25 10 00 10 07 10 13 10 20 10 25 10 35 10 39 10 43	13 11 13 01 12 51 12 41 12 32 12 23 12 14 12 06 11 58 11 50 11 43 11 36 11 29 11 22 11 16 11 0 58 10 47 10 36 10 26 10 17 10 08 9 34 9 24 9 15 9 34 9 24 9 15 9 37 7 16 7 06 6 58 8 15 8 05 7 40 7 27 7 16 7 06 6 58 6 37 6 32 6 6 15 6 6 6 5 5 51 5 38 5 37 5 22 5 17	2 53 3 03 3 13 3 23 3 341 3 50 3 58 4 06 4 14 4 21 4 28 4 4 35 5 47 5 5 66 6 19 6 30 6 449 7 7 13 7 26 6 57 7 13 7 26 7 39 9 26 9 31 10 08 10 10 30 10 38 10 38	13 16 13 06 12 56 12 46 12 37 12 28 12 19 12 11 12 03 11 55 11 48 11 11 34 11 27 11 15 11 03 10 52 10 41 11 03 10 52 10 13 10 01 9 39 9 29 9 12 8 56 8 43 8 30 8 10 8 7 32 7 21 7 11 7 03 6 55 6 48 6 42 6 37 6 31 6 20 6 11 6 20 6 6 11 6 6 20 6 6 11 6 5 20 6 6 11 6 5 20 6 6 11 6 5 20 6 6 11 6 5 20 6 6 11 6 6 20 6 6 11 6 6 20 6 6 11 6 6 20 6 7 20 7 20 7 20 7 20 7 20 7 20 7 20 7 20

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oet.	Nov.	Dec.
Additional Corr. for Sun's Alt.	1st to 15th 16th to 31st							-14 -13				+11 +14	

^{*}The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

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TABLE 46.

	HEIGHT OF THE EYE.												
	31 Feet.	32 Feet.		33	Feet.	34	Feet.	35 F	eet.				
OBS. ALT.	Sun's Star's Corr. (+) (-)	Corr. (* tar's Corr. (-)	Sun's Corr. (+)	* Star's Corr (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)				
6 30 40 50 7 00 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 50 9 00 20 40 11 00 12 00 10 00 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 19 00 20 20 20 40 11 00 20 40 11 00 20 40 11 00 20 40 11 00 20 40 11 00 20 40 12 00 20 40 13 00 14 00 15 00 16 00 17 00 18 00 20 00 22 00 24 00 25 00 26 00 27 00 28 00 30 00 29 00 20	2 48 13 21 2 58 13 11 3 08 13 01 3 18 12 51 3 27 12 42 3 36 12 33 3 45 12 24 4 01 12 00 4 16 11 53 4 23 11 46 4 30 11 39 4 37 11 32 4 43 11 26 4 49 11 20 5 01 11 08 5 12 10 57 5 23 10 46 5 31 10 36 6 14 9 55 6 03 10 06 6 14 9 55 6 25 9 17 7 08 9 01 7 21 8 8 25 7 34 8 35 7 44 8 25 7 54 8 15 8 02 8 6 16 9 9 00 7 08 9 08 7 00 9 15 6 53 9 21 6 47 9 31 6 36 9 42 6 25 9 57 6 8 10 10 10 5 54 10 10 15 5 48 10 19 5 54 10 19 55 10 19 55 10 10 10 10 10 10 10 10 10 10 10 10 10 1	2 52 3 02 3 12 3 30 3 39 3 47 3 55 4 10 4 17 4 24 4 31 4 37 4 43 4 43 4 55 5 17 5 36 6 19 6 29 6 38 6 6 19 6 29 6 38 6 7 02 7 15 7 28 8 25 8 36 8 46 8 7 7 56 8 8 12 9 9 9 15 9 9 20 9 9 20 9 9 25 9 9 20 9 9 20 9 9 10 10 09 10 10 10	, 3 27 3 27 3 27 3 27 3 27 3 27 3 27 3 28 48 2 2 39 2 2 2 14 4 2 06 1 1 52 1 1 45 1 1 38 1 1 32 1 1 1 4 1 1 03 2 2 1 4 1 1 03 2 2 1 4 1 1 03 2 3 9 3 9 9 3 1 1 1 1 4 1 1 03 2 4 3 9 9 9 3 1 3 9 9 9 3 1 3 7 7 3 2 4 8 8 8 8 1 7 7 7 7 6 6 5 3 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2 37 2 47 2 57 3 16 3 25 3 34 2 3 50 3 58 4 05 3 58 4 12 4 19 4 26 4 32 4 38 4 4 50 5 12 5 52 6 03 6 24 6 33 7 23 7 23 7 23 7 23 7 23 7 23 7 23 7	, " 13 32 13 22 13 12 13 12 13 12 13 12 14 12 53 12 44 12 35 12 19 12 11 12 04 11 57 11 50 11 43 11 37 11 31 11 19 11 08 10 57 10 47 10 38 10 29 10 17 10 06 9 55 9 36 8 26 8 17 10 38 8 26 8 17 10 47 10 48 7 37 7 19 7 11 7 04 6 58 6 6 27 7 19 7 11 7 04 6 55 5 54 5 54 5 54 5 54	2 32 2 42 2 52 3 3 11 3 20 3 3 29 3 3 45 3 53 4 007 4 14 4 21 4 27 4 33 3 4 5 6 6 19 6 28 6 36 6 52 7 7 18 8 26 6 36 6 52 7 7 18 8 26 8 36 8 36 8 36 8 36 8 36 8 36 8 3	, "13 37 13 27 13 17 13 17 12 58 12 49 12 24 12 16 12 09 12 02 11 55 11 48 11 42 10 52 10 34 11 13 11 02 10 34 11 13 10 34 10 22 10 11 11 10 9 9 41 9 33 9 17 9 9 41 8 31 8 31 7 53 7 42 7 7 16 7 7 09 7 6 58 6 52 6 41 6 10 6 04 5 59 5 59 5 59 5 59 5 59 5 59	2 27 2 2 37 2 2 37 2 2 37 3 366 3 15 3 324 3 365 3 340 4 4 28 4 4 4 51 5 5 12 5 5 42 5 5 42 5 5 5 42 6 6 14 7 7 13 7 7 33 7 7 41 7 7 8 10 9 9 10 9 9 21 9 9 36 9 9 49 9 9 54 9 104 9	13 42 13 32 13 12 13 03 12 54 12 29 12 21 12 14 12 29 12 21 12 14 12 00 11 53 11 47 11 41 11 129 11 18 11 07 10 57 10 16 10 05 9 46 9 38 9 29 9 38 8 46 8 36 8 27 7 27 7 29 7 21 7 14 7 08 6 6 76 6 6 99 6 6 6 58				

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. For Sun's Alt.				+8 +4			-13 -14			-5 -1			+16 +18

^{*} The corrections for the observed altitude of a Star or Planet involves the dlp and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

TABLE 46.

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Obs. Alt. 36 Feet. 37 Feet. 38 Feet. 39 Feet.		
Sun's Corr. (+) Star's Corr. (-) Corr. (-) Corr. (-) <t< td=""><td>0 1</td><td>40 Feet.</td></t<>	0 1	40 Feet.
6 30	OBS. ALT.	⊙ * Sun's Star's Corr. Corr. (+) (−)
50 4 17 11 52 4 12 11 57 4 08 12 01 4 03 12 0 20 4 35 11 34 4 30 11 39 4 26 11 43 4 21 11 14 40 4 46 11 23 4 41 11 128 4 37 11 32 4 32 11 3 10 00 4 57 11 12 4 52 11 17 4 48 11 21 4 43 11 21 4 43 11 21 4 43 11 21 4 43 11 21 4 43 11 21 4 43 11 21 4 43 11 21 4 43 11 21 4 43 11 21 4 43 11 20 5 50 10 10 5 50 11 10 58 5 07 11 02 5 02 11 0 5 50 11 07 4 58 11 11 4 43 11 10 58 5 07 11 02 5 02 11 0 5 50 11 02 5 02 11 0 5 50 10 19 5 45 10 10 5 44 10 15 5 50 10 19 5 45 10 3 5 10 <t< td=""><td>6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 10 00 20 40 11 00 12 00 30 12 00 30 13 00 16 00 16 00 17 00 18 00 19 00 20 00 20 00 20 00 20 00 20 00 30 0</td><td>2 03 14 06 2 13 13 56 2 23 13 46 2 23 13 36 2 242 13 27 2 51 13 18 3 00 13 09 3 08 13 01 3 16 12 53 3 24 12 45 3 31 12 38 3 38 12 31 3 45 12 24 3 52 12 17 3 58 12 11 4 04 12 05 4 16 11 53 4 27 11 42 4 38 11 31 4 48 11 21 4 57 11 12 5 06 11 03 5 18 10 51 5 29 10 40 5 40 10 29 5 50 10 19 5 59 10 10 6 07 10 02 6 23 9 46 6 36 9 33 6 49 9 20 6 59 9 10 7 09 9 00 7 17 8 51 7 33 8 35 7 46 8 22 7 57 8 11 8 07 8 11 8 15 7 53 8 23 7 45 8 30 7 38 8 36 7 32 8 46 7 21 8 57 7 10 9 05 7 01 9 12 6 53 9 18 6 56 9 25 6 39 9 30 6 33 9 34 6 22 9 44 6 17 9 48 6 12</td></t<>	6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 10 00 20 40 11 00 12 00 30 12 00 30 13 00 16 00 16 00 17 00 18 00 19 00 20 00 20 00 20 00 20 00 20 00 30 0	2 03 14 06 2 13 13 56 2 23 13 46 2 23 13 36 2 242 13 27 2 51 13 18 3 00 13 09 3 08 13 01 3 16 12 53 3 24 12 45 3 31 12 38 3 38 12 31 3 45 12 24 3 52 12 17 3 58 12 11 4 04 12 05 4 16 11 53 4 27 11 42 4 38 11 31 4 48 11 21 4 57 11 12 5 06 11 03 5 18 10 51 5 29 10 40 5 40 10 29 5 50 10 19 5 59 10 10 6 07 10 02 6 23 9 46 6 36 9 33 6 49 9 20 6 59 9 10 7 09 9 00 7 17 8 51 7 33 8 35 7 46 8 22 7 57 8 11 8 07 8 11 8 15 7 53 8 23 7 45 8 30 7 38 8 36 7 32 8 46 7 21 8 57 7 10 9 05 7 01 9 12 6 53 9 18 6 56 9 25 6 39 9 30 6 33 9 34 6 22 9 44 6 17 9 48 6 12

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. For Sun's Alt.	1st to 15th 16th to 31st			+8 +4				10		-5 -1		1	+16 +18

^{*} The corrections for the observed attitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

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TABLE 46.

	HEIGHT OF THE EYE. 41 Feet. 42 Feet. 43 Feet. 44 Feet. 45 Feet. 46 Feet.													
0.00	41 F	cet.	42 F	eet.	43 F	eet.	44 F	eet.	45 F	eet.	46 F	eet.		
OBS. ALT.	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)		
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 50 9 00 20 40 11 00 20 40 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 19 00 20 40 11 7 00 18 00 19 00 20 40 10 00 10 00	1 58 2 08 2 18 2 28 2 37 2 24 2 37 2 25 3 3 3 11 3 19 3 26 3 33 3 40 3 47 3 53 4 11 4 22 4 43 4 45 2 5 5 5 5 45 6 6 18 6 31 6 6 44 6 7 7 12 7 28 8 10 8 10 8 10 8 10 8 10 9 10 9 10 9 10 9 10 9 10 9 10 9 10 9	7 14 11 14 01 13 51 13 32 13 23 36 12 29 12 22 12 10 11 58 12 23 6 12 29 12 21 10 11 36 11 17 11 08 10 56 11 17 11 08 10 10 45 11 17 11 08 10 10 10 10 10 10 10 10 10 10 10 10 10	, 1 54 2 2 4 2 2 33 3 2 42 2 2 2 3 3 3 3 43 3 3 45 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	, "14 15 14 05 13 345 13 36 13 27 12 40 12 26 12 20 11 51 11 12 11 10 11 21 11 10 10 38 10 28 10 19 55 42 9 29 9 19 9 00 8 44 8 31 10 10 10 10 10 10 10 10 10 10 10 10 10	1 49 1 59 2 19 2 28 2 37 2 46 3 02 3 10 3 17 2 43 3 31 3 38 4 4 34 4 4 34 4 4 34 4 4 4 34 4 4 52 5 5 36 6 22 6 35 5 5 36 6 22 7 7 53 8 01 8 27 8 28 8 27 8 28 8 29 8 20 8 20 8 20 8 20 8 20 8 20 8 20 8 20	14 20 14 100 13 50 13 41 13 32 13 15 13 07 12 59 12 25 12 245 12 219 12 25 12 12 38 12 219 12 25 11 35 11	1 44 1 54 2 14 2 23 2 24 2 25 3 31 2 25 3 31 2 25 3 31 3 35 3 35 3 35 3 35 3 35 3 35 3 3	14 25 14 15 13 35 13 46 13 37 13 28 13 20 13 12 13 04 12 50 12 24 12 36 12 36 12 36 12 36 12 36 12 36 12 36 12 36 11 20 11 40 11 31 11 22 11 10 59 10 21 11 10 59 10 29 10 21 11 38 10 38 10 29 10 29 10 21 10 59 10 50 10 5	1 39 1 1 59 2 2 18 2 2 76 3 3 14 2 52 3 3 3 4 4 2 4 5 4 5 3 5 3 5 4 3 3 3 5 2 3 4 4 4 4 4 5 5 16 6 25 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	14 30 14 20 14 10 13 51 13 32 13 33 13 33 13 17 13 09 12 55 12 48 12 41 12 25 12 27 12 12 06 11 55 11 36 11 27 11 10 4 11 27 11 10 4 11 27 11 10 4 10 26 11 27 11 10 4 10 26 11 27 11 10 4 10 26 11 27 11 10 4 11 27 11 10 4 10 26 10 26	1 35 1 45 5 2 14 2 23 2 2 48 2 56 3 3 10 3 17 4 3 3 36 4 10 3 3 48 3 59 4 10 4 29 4 38 4 50 1 2 2 5 5 31 9 5 5 6 08 13 18 29 7 7 5 5 2 2 5 3 10 7 7 29 9 7 7 7 7 5 5 2 8 08 8 13 8 18 8 2 9 9 12 0 9 1	14 34 14 24 14 14 04 13 55 13 46 13 37 13 29 13 21 13 13 13 06 12 59 12 52 12 45 12 33 12 21 12 10 11 59 11 40 11 31 11 19 11 08 10 57 10 47 10 38 10 30 10 14 11 01 9 48 9 38 8 29 8 21 8 13 8 00 7 55 7 49 7 29 7 21 7 01 6 56 6 50 6 40		

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. for Sun's Alt.	1st to 15th 16th to 31st		$^{''}_{+15}_{+12}$		4		7.4			-5 -1	+3 +7		$^{"}_{+16}$ $^{+18}$

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

			······································		HE	IGHT OF	THE I	EYE.				
OBS. ALT.	47 H	Peet.	48 Fe	et.	49	Feet.	50 I	Feet.	51 F	eet.	52 H	Feet.
OBS. ALI.	Sun's Corr. (+)	* Star's Corr.	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 10 00 20 40 11 00 20 40 11 00 12 00 13 00 13 00 13 00 14 00 15 00 16 00 17 00 18 00 20 00 22 00 20 00 22 00 20 0	1 31 1 41 1 51 1 2 10 2 2 10 2 2 2 36 3 3 22 5 2 2 44 4 25 5 2 3 66 3 3 22 5 2 3 66 4 25 4 3 4 4 4 5 7 8 8 8 1 4 5 7 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8	14 38 14 18 14 18 14 18 14 18 14 18 13 59 13 50 13 41 13 33 13 25 13 17 13 10 12 56 12 49 12 25 12 14 12 03 11 53 11 14 11 35 11 12 10 10 51 11 10 51 11 10 51 10 10 51 10 10 51 10 10 51 10 10 51 10	1 27 1 27 1 27 1 27 1 27 1 47 1 57 2 06 2 2 24 2 32 2 40 2 2 32 2 2 40 2 2 32 2 2 40 3 3 28 3 3 40 3 51 2 4 21 4 21 4 4 21 4 4 21 4 4 23 5 5 31 6 6 33 6 6 31 7 7 21 7 7 31 7 7 54 8 05 8 2 55 8 2 6 6 7 7 7 21 7 7 54 8 8 58 8 58 8 59 8 59 8 59 8 59 8 59 8	14 4 22 14 22 14 12 14 03 13 45 13 37 13 29 13 14 13 07 13 00 12 53 13 14 12 29 12 18 12 17 12 47 11 27 11 57 11 48 11 39 11 27 11 16 11 05 10 55 10 38 10 22 10 09 9 56 10 38 8 47 7 7 29 7 7 29 7 7 29 7 7 7 29 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1 23 1 33 1 43 1 53 2 02 2 21 2 22 2 28 2 2 36 2 2 45 2 2 58 3 3 24 2 2 58 3 3 24 2 2 58 3 3 24 3 3 66 3 3 47 4 26 4 4 49 5 5 00 5 5 10 6 6 29 6 6 37 7 5 6 6 6 9 9 04 9 08 9 08 9 08 9 08 9 08 9 08 9 08 9 08	14 46 14 36 14 26 14 16 14 07 13 58 13 49 13 41 13 33 13 25 13 18 13 11 13 04 12 57 12 51 12 45 12 33 12 22 12 11 12 01 11 52 11 43 11 31 11 20 11 09 10 59 10 50 10 42 10 26 10 13 10 00 9 50 9 40 9 31 11 31 11 20 11 09 10 59 10 50 10 42 10 26 10 13 10 00 9 50 9 40 9 31 9 15 9 02 8 51 8 41 8 33 8 25 8 18 8 12 8 07 7 41 7 33 7 08 8 18 8 12 8 07 7 41 7 33 7 08 7 19 7 13 7 08 7 09 6 57 6 52	1 199 1 299 1 399 1 499 1 588 2 207 2 244 2 32 2 247 2 54 3 3 3 3 2 2 2 47 2 54 3 3 3 3 2 2 4 4 4 4 5 4 5 6 6 6 5 5 2 3 5 5 5 2 5 6 6 15 5 5 3 9 5 6 6 2 5 3 6 6 2 5 7 7 2 3 1 3 7 3 1 9 6 6 2 5 7 5 7 5 2 7 5 7 5 2 7 5 7 5 2 7 5 7 5	14 40 14 40 14 30 14 20 14 11 14 02 13 53 13 37 13 29 13 22 13 15 13 08 13 01 12 55 11 25 12 15 12 15 12 15 11 25 11 25 11 26 11 15 11 27 11 33 10 34 11 03 10 17 10 46 10 30 10 17 10 9 54 9 9 19 9 06 8 55 8 37 8 29 9 19 9 06 8 55 8 45 8 37 7 37 7 30 8 29 8 16 8 11 8 15 8 16 8 17 8 17 8 29 8 16 8 17 8 29 8 29 8 29 8 16 8 56 8 17 8 29 8 29 8 16 8 57 8 57 8 59 8 59 8 57 8 57 8 59 8 57 8 59 8 57 8 59 8 57 8 57 8 59 8 57 8 57 8 59 8 57 8 57 8 57 8 59 8 57 8	1 15 1 25 1 35 1 45 1 2 12 2 20 2 28 2 25 2 25 3 30 2 2 20 2 28 2 2 57 3 3 10 3 16 3 29 3 3 50 4 09 4 18 4 30 4 44 4 52 5 5 12 5 5 19 5 35 5 48 6 6 11 6 6 29 6 6 58 7 7 9 7 7 7 7 35 7 7 48 8 30 8 17 8 18 8 19 8 19 8 19 8 19 8 19 8 19 8 19	14 54 14 44 14 14 34 14 14 15 14 06 13 57 13 49 13 12 13 05 13 12 13 05 12 53 12 41 12 30 12 19 12 00 11 51 11 28 11 17 11 07 10 58 11 17 11 07 10 58 9 48 9 39 9 23 9 10 8 59 8 49 9 28 9 39 9 20 8 59 8 49 8 41 8 33 9 7 41 7 7 41 7 7 67 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1 11 1 21 1 31 1 41 1 50 1 59 2 08 2 16 2 24 2 32 2 46 2 23 2 2 46 2 23 3 3 00 3 12 3 24 4 2 33 2 2 46 4 05 4 14 4 26 4 37 4 4 48 4 58 5 5 7 15 5 31 7 38 7 7 44 7 7 54 8 13 8 20 8 26 8 27 8 13 8 20 8 20 8 20 8 20 8 20 8 20 8 20 8 20	14 58 14 48 14 38 14 48 14 38 14 19 14 10 14 01 13 53 13 45 13 37 13 30 13 23 13 16 13 30 13 23 13 16 13 23 13 16 13 09 13 03 12 57 12 45 12 24 11 21 11 11 11 02 11 21 11 11 11 02 10 54 10 38 10 25 10 02 9 43 9 27 10 02 9 43 9 27 10 7 10 45 10 7 10 7 10 7 10 7 10 7 10 7 10 7 10 7
		Day	or month.	Jan.	Feb. 1	Apr	Biay.	June. Ju	Aug.	Bept.	- NO	v. Dec.

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. for Sun's Alt.	1st to 15th 16th to 31st		$^{''}_{+15}_{+12}$	+8 +4	0 -4	- 8 -11	-13 -14	-14 -13	-11 - 9	-5 -1	+3 +7	+11 +14	+16 +18

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

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TABLE 46.

	1				HEI	GHT OF	THE E	YE.				
	53 I	Feet.	54 F	eet.	55 F	eet.	56 F	eet.	57 H	reet.	58 F	eet.
OBS. ALT.	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. ()	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sum's Corr. (+)	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 50 9 00 20 40 11 00 12 00 40 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 19 00 20 00	1 07 1 1 27 34 4 55 1 1 1 2 2 2 2 2 3 5 2 2 2 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	15 02 14 42 14 23 14 14 14 05 13 34 13 27 13 13 13 13 13 13 13 13 13 13 13 13 13	103 13 13 13 13 13 13 13 13 13 13 13 13 13	15 06 14 56 14 46 14 27 14 18 14 09 14 11 13 53 13 34 13 31 11 13 05 3 12 42 12 21 12 12 12 12 12 12 12 12 12 10 11 10 00 11 11 10 10	0 59 1 19 1 29 1 38 1 47 1 56 4 2 22 27 2 34 1 25 4 3 00 2 2 27 2 2 44 3 3 3 3 3 4 4 4 25 6 4 2 5 5 5 5 6 6 5 3 2 2 2 2 3 3 3 3 4 4 14 4 25 6 6 5 3 3 5 5 5 5 5 5 6 6 5 3 2 2 2 2 3 3 3 3 4 4 4 4 2 5 6 6 5 3 3 6 6 4 2 2 2 2 3 3 3 3 4 4 4 4 2 5 6 6 5 3 3 6 6 6 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	15 10 15 00 14 50 14 40 14 31 14 22 14 13 13 57 13 49 13 35 13 28 13 21 13 15 12 25 12 25 12 25 12 25 12 12 15 12 10 10 50 11 33 11 14 11 33 11 14 11 106 10 50 10 10 10	0 55 1 15 1 25 1 34 1 43 1 52 2 008 2 16 3 2 307 2 2 44 2 2 506 3 3 40 2 2 56 3 3 40 3 49 3 4 51 5 5 2 41 4 51 5 5 5 2 41 4 51 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	15 14 15 04 14 15 04 14 26 14 14 35 14 26 14 17 14 01 13 53 13 46 13 39 13 25 13 19 13 13 13 01 12 50 12 29 12 29 12 29 12 29 11 48 11 37 11 18 11 10 10 54 11 10 28 11 10 10 54 11 10 28 11 10	0 51 1 01 1 11 1 21 1 30 1 39 1 48 1 56 2 12 2 2 19 2 2 46 2 2 2 33 3 26 2 2 46 2 52 3 3 45 4 4 06 4 17 4 28 4 4 38 4 4 47 5 5 57 5 6 05 1 6 45 6 55 7 7 11 8 7 24 7 7 29 7 7 45 7 7 53 8 00 8 8 13 8 8 28 8 36 8 36 8 17 7 18 8 18 8 18 8 18 8 18 8 18 8 18	15 18 15 08 14 48 14 39 14 30 14 213 14 05 13 57 13 50 13 43 61 329 13 23 13 17 52 12 43 12 23 11 52 11 14 10 58 10 45 10 12 11 14 10 58 10 45 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 10 12 11 14 10 58 57 58 50 8 44 8 39 9 15 8 57 51 7 45 7 40 7 24 7 24	0 48 0 58 1 08 1 18 1 27 1 36 1 45 1 2 09 2 16 2 23 2 37 2 43 3 12 2 39 2 2 43 3 12 2 30 2 43 3 42 4 4 4 52 5 24 4 4 52 5 5 44 4 5 5 5 5 5 44 5 6 6 7 7 7 50 7 7 7 7 7 8 8 10 8 15 8 29 8 33 8 33 8 29 8 33 8 29 8 30 8 6 6 7 7 8 8 10 8 8 15 8 8 29 8 8 33 8 8 29 8 8 29 8 8 33 8 8 29 8 29	15 21 15 11 15 11 14 51 14 51 14 42 14 33 14 24 14 10 13 53 13 26 13 20 13 32 13 26 13 20 13 26 12 27 12 18 12 26 11 55 11 44 11 25 11 17 11 01 11 10 11 10 11 10 12 10 10 15 10 16 10 16 10 17 10 18 10 18

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. for Sun's Alt.	1st to 15th 16th to 31st		+15 +12	+8 +4	" 0 -4		-13 -14		-11 - 9	-5 -1	+3 +7		+16 +18

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16′. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

					HE	GHT OF	THE P	EYE.				
	59 F	eet.	60 I	eet.	61 H	eet.	62 I	Peet.	63 H	eet.	64 I	eet.
Obs. ALT.	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr. (+)	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 9 00 20 40 11 00 20 20 40 11 00 20 20 40 11 00 20 20 20 20 20 20 20 20 20	0 44 0 104 1 123 1 32 1 34 1 149 1 57 2 05 2 19 2 26 2 33 2 39 2 45 3 19 4 21 4 40 3 38 3 47 3 49 4 21 4 40 4 40 4 50 5 50 6 48 6 6 56 7 04 7 7 7 7 22 7 7 7 36 8 8 11 8 8 29 8 8 29 8 8 29 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	15 25 15 15 15 15 15 15 15 15 15 15 15 15 15 1	0 40 0 100 1 100 1 119 1 28 1 37 1 45 1 2 018 2 2 22 2 2 35 3 34 3 3 55 3 34 3 3 55 4 4 17 4 27 4 34 5 5 24 6 23 6 34 6 44 6 52 7 7 07 7 13 7 18 8 25 6 34 6 44 6 52 8 07 8 11 8 25 6 34 6 44 6 55 7 7 7 13 7 7 18 8 25 8 07 8 11 8 12 8 12 8 13 8 14 8 15 8 16 8 17 8 18 8 18	15 29 15 19 15 09 14 59 14 50 14 41 14 32 14 24 14 16 14 32 14 24 13 34 13 34 13 35 13 16 13 05 12 24 12 23 11 52 12 16 12 10 13 11 25 11 42 12 03 11 52 11 13 11 25 11	0 36 0 46 0 56 1 06 1 15 1 24 1 33 1 41 1 49 1 57 2 21 2 31 2 25 2 37 2 49 3 00 3 39 3 51 4 13 3 4 23 4 4 23 4 4 23 4 4 56 6 5 6 06 6 40 6 6 40 6 6 56 6 6 7 7 99 7 7 14 7 7 7 51 8 8 03 8 8 07 8 8 17 7 7 55 8 8 03 8 8 07 8 8 17 8 8 17 8 8 17 8 8 17 8 8 17 8 8 17 8 18 8 18	15 33 15 13 15 13 15 13 15 13 15 13 15 13 15 13 15 14 54 14 28 14 20 14 12 14 05 14 13 58 13 51 13 34 13 32 13 20 12 58 12 13 13 11 00 12 12 13 18 12 07 11 56 11 46 11 13 11 00 10 47 10 27 10 18 10 02 9 49 9 20 9 10 9 9 20 9 10 9 9 10 9 9 10 9 9 10 9 9 10 9 10	0 32 0 42 0 42 0 52 1 11 1 29 1 37 1 45 1 53 2 07 2 14 2 27 2 33 2 45 2 27 3 26 3 35 3 47 3 26 3 35 3 4 59 4 19 4 28 4 52 5 5 18 5 5 38 6 6 6 59 7 7 10 7 7 26 7 7 34 7 7 7 59 8 03 8 03 8 03 8 03 8 03 8 03 8 03 8 03	15 37 15 27 15 17 15 17 15 07 14 58 14 49 14 32 14 24 14 16 14 02 13 55 13 48 13 36 13 24 13 13 21 2 22 12 13 13 12 34 11 2 22 12 11 12 00 11 50 11 41 10 31 11 10 41 10 31 11 0 41 10 31 10 22 9 32 9 32 9 24 9 16 9 9 03 8 58 8 52 8 24 8 17 7 59 7 58 8 04 7 7 59 7 7 58 7 43 8 04 7 59 7 7 58 8 04 7 7 59 7 7 58 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0 29 0 39 0 49 0 59 1 08 1 17 1 26 1 34 1 42 1 50 1 2 04 2 11 2 18 2 24 2 2 30 2 2 42 2 2 53 3 3 4 4 16 4 25 3 3 3 4 4 9 5 5 15 5 5 35 5 5 43 5 5 5 43 6 6 41 6 6 56 6 7 02 7 7 07 7 7 12 8 8 00 8 8 00 8 8 14 9 14 9 14 9 14 9 14 9 14 9 14 9 14 9	15 40 15 20 15 10 15 10 15 10 14 52 14 43 14 27 14 12 14 27 14 12 14 05 13 58 13 51 13 39 13 27 13 16 12 37 12 24 12 37 12 24 12 37 12 24 12 37 12 12 14 12 03 11 53 11 13 11 10 11 07 11 07 10 25 10 9 9 56 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	0 25 0 35 0 45 0 55 1 04 1 13 1 22 1 30 1 38 1 1 22 2 14 2 200 2 26 2 38 3 10 3 19 3 28 3 40 2 26 2 38 3 40 3 51 4 429 4 45 4 45 5 11 5 31 5 39 5 55 6 6 19 6 6 52 6 58 7 03 8 7 03 8 7 7 8 8 06 8 10 8 10	15 44 15 24 15 14 56 14 56 14 47 14 39 14 31 14 23 14 16 14 09 14 02 13 55 13 49 13 31 13 20 13 39 12 59 12 50 12 41 12 29 12 18 12 27 11 57 11 48 11 24 11 11 10 58 10 48 10 29 10 13 10 9 10 9 10 9 10 9 10 9 10 9 10 9 10 9
Addition for Sun		1st t	o 15th to 31st.	+18	+15 +	-8 0 -4 -4	- 8		" 4 -11		" +3 +7 +14 +7	+16

^{*}The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

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TABLE 46.

65 F Sun's Corr. (+) 0 21 0 31 0 41 1 56 1 34 1 42 1 49 1 56 2 22 2 34 2 2 16 2 22 2 34 3 36	* Star's Corr. (-) , " 15 48 15 38 15 18 15 00 14 51 14 43 14 35 14 27 14 20 14 13 14 06 13 59 13 34 13 13 13 03 12 54	66 F Sum's Corr. (+) 0 18 0 28 0 38 0 48 0 57 1 06 1 15 1 23 1 31 1 39 2 00 2 07 2 13 2 19 2 31 2 42 2 53 3 03	* Star's Corr. (-) 15 51 15 41 15 31 15 21 15 12 15 03 14 54 14 46 14 30 14 23 14 16 14 09 14 02 13 56 13 36 13 38 13 27	67 F Sun's Corr. (+) 0 14 0 24 0 34 0 53 1 02 1 11 1 19 1 27 1 42 1 49 1 56 2 09 2 15	eet. * Star's Corr. (-) 15 55 15 45 15 35 15 25 15 16 17 14 58 14 50 14 42 14 34 14 27 14 20 14 13 14 06 14 00 13 54	68 F Sun's Corr. (+) 0 10 0 20 0 30 0 40 0 49 0 58 1 07 1 15 1 23 1 31 1 38 1 45 1 52 1 59 2 05	reet. * Star's Corr. (-) 15 59 15 49 15 39 15 29 15 11 15 02 14 54 14 46 14 38 14 24 14 17 14 10 14 04	Sun's Corr. (+) 0 07 0 17 0 27 0 37 0 46 0 55 1 50 1 12 1 20 1 28 1 35 1 42 1 49 1 56	* Star's Corr. (-) 16 02 15 52 15 42 15 32 15 14 15 05 14 47 14 49 14 41 14 34 14 27 14 20 14 13	70 F Sun's Corr. (+) 0 03 0 13 0 23 0 32 0 32 0 42 0 51 1 00 1 08 1 16 1 24 1 31 1 38 1 45 1 52	eet. * Star's Corr. (
Sun's Corr. (+) 0 21 0 31 0 41 1 00 1 09 1 18 1 34 1 42 1 49 1 56 2 203 2 10 2 16 3 2 25 3 3 24	Star's Corr. (~) 15 48 15 38 15 28 15 19 15 00 14 51 14 43 14 35 14 27 14 20 14 13 14 06 13 59 13 34 13 13 13 03 12 54	Sun's Corr. (+) 0 18 0 28 0 38 0 48 0 57 1 06 1 15 1 23 1 31 1 39 1 46 1 53 2 00 2 07 2 13 2 19 2 31 2 42 2 53	Star's Corr. (-) 15 51 15 41 15 31 15 21 15 12 15 03 14 54 14 46 14 38 14 30 14 20 14 20 13 56 13 50 13 38	Sun's Corr. (+) 0 14 0 24 0 34 0 53 1 02 1 11 1 19 1 27 1 35 1 42 1 49 1 56 2 03 2 09 2 15	Star's Corr. (~) 15 55 15 45 15 35 15 15 16 15 07 14 58 14 58 14 42 14 42 14 42 14 27 14 20 14 13 14 06 14 06	Sun's Corr. (+) 0 10 0 20 0 30 0 40 0 49 0 58 1 07 1 15 1 23 1 31 1 38 1 45 1 59	Star's Corr. (-) 15 59 15 49 15 29 15 20 15 11 15 02 14 54 14 46 14 38 14 31 14 24 14 17 14 10	Sm's Corr. (+) 0 07 0 17 0 27 0 37 0 46 0 55 1 04 1 12 1 20 1 28 1 35 1 42 1 49 1 56	Star's Corr. (-) 16 02 15 52 15 42 15 32 15 14 15 05 14 47 14 49 14 41 14 34 14 27 14 20 14 13	Sum's Corr. (+) 0 03 0 13 0 23 0 33 0 42 0 51 1 00 1 08 1 16 1 24 1 31 1 38 1 45	Star's Corr. (cr) (cr) (dr) (dr) (dr) (dr) (dr) (dr) (dr) (d
0 21 0 31 0 41 1 00 1 09 1 18 1 26 1 34 1 42 1 49 2 10 2 16 2 22 2 34 2 45 3 03 3 24	15 48 15 38 15 28 15 18 15 09 15 00 14 51 14 43 14 35 14 27 14 20 14 13 14 06 13 59 13 47 13 35 13 24 13 13 03 12 54	0 18 0 28 0 38 0 48 0 48 1 15 1 23 1 31 1 39 1 46 1 53 2 00 2 13 2 19 2 31 2 42 2 53	15 51 15 41 15 31 15 12 15 12 15 03 14 54 14 46 14 38 14 38 14 30 14 23 14 16 14 09 14 02 13 56 13 50 13 38	0 14 0 24 0 34 0 43 1 02 1 11 1 19 1 27 1 35 1 42 1 49 1 56 2 03 2 09 2 15	15 55 15 45 15 35 15 25 15 16 07 14 58 14 50 14 42 14 34 14 27 14 20 14 13 14 06 14 00	0 10 0 20 0 30 0 40 0 49 0 58 1 07 1 15 1 23 1 31 1 38 1 45 1 52 1 59	15 59 15 49 15 39 15 20 15 20 15 11 15 02 14 54 14 46 14 38 14 31 14 24 14 17 14 10	0 07 0 17 0 27 0 37 0 46 0 55 1 04 1 12 1 20 1 28 1 35 1 42 1 49 1 56	16 02 15 52 15 42 15 32 15 23 15 14 15 05 14 57 14 49 14 41 14 34 14 27 14 20 14 13	0 03 0 13 0 23 0 33 0 42 0 51 1 00 1 08 1 16 1 24 1 31 1 38 1 45	16 06 15 56 15 46 15 36 15 27 15 18 15 09 15 01 14 53 14 45 14 38 14 31 14 24
3 47 3 58 4 08 4 17 4 25 4 41 4 54 5 17 5 17 5 5 51 6 04 5 6 33 6 41 6 6 59 7 23 7 36 7 43 7 43 7 58 8 02 8 06	12 45 12 33 12 22 12 11 12 01 11 52 11 41 11 28 11 15 11 02 10 52 10 42 10 33 10 17 10 04 9 53 9 43 9 35 9 27 9 20 9 14 9 19 9 03 8 52 8 43 8 28 8 21 8 15 8 10 8 10 8 10 8 10 8 10 8 10 8 10 8 10	3 12 3 21 3 33 3 44 4 05 4 14 4 22 4 38 4 51 5 04 5 14 5 24 5 32 5 48 6 01 6 12 6 30 6 38 6 45 6 51 7 7 12 7 20 7 7 27 7 7 33 7 40 7 45 7 7 59 8 03	13 16 13 06 12 36 12 25 12 14 12 04 11 55 11 47 11 31 11 13 11 05 10 55 10 45 10 20 10 07 9 56 9 48 9 38 9 23 9 17 9 12 9 16 8 55 8 46 8 38 8 13 8 24 8 18 8 18 8 17 8 02 7 57	2 27 2 38 2 49 3 08 3 17 3 29 3 40 3 51 4 01 4 10 4 18 4 4 47 5 00 5 20 5 28 5 44 5 57 6 08 6 26 6 34 6 41 6 6 52 6 57 7 7 08 7 16 7 23 7 29 7 36 7 45 7 59	13 42 13 31 13 20 13 10 13 01 12 52 12 40 12 29 12 18 12 08 11 59 11 51 11 35 11 35 11 09 10 49 10 00 9 50 9 34 9 27 9 34 9 27 9 21 9 10 8 59 9 10 8 59 8 28 8 28 8 21 8 06 8 01	2 11 2 23 2 34 2 45 3 04 3 13 3 25 3 36 4 14 3 3 57 4 06 4 13 4 56 6 5 16 6 5 24 5 40 5 53 6 6 14 6 22 6 30 6 37 7 6 48 6 53 7 7 47 7 7 51 7 7 55	13 58 13 46 13 35 13 24 13 14 13 05 12 56 12 44 12 33 11 55 11 39 11 26 11 13 11 03 10 54 10 15 10 04 9 54 9 38 9 31 9 25 9 14 9 9 38 9 31 9 25 9 14 9 9 38 8 32 8 32 8 26 8 25 8 15 8 10 8 05	2 02 2 08 2 2 08 2 2 31 2 42 2 52 3 31 3 22 3 33 3 44 11 4 27 4 40 4 53 5 03 5 13 5 21 6 61 6 61 6 61 6 62 7 63 6 64 6 65 6 7 01 7 09 7 7 22 7 29 7 34 7 48 7 52	14 07 14 01 13 49 13 38 13 27 13 17 13 08 12 59 12 47 12 36 11 58 11 16 11 06 10 56 11 10 18 10 07 9 57 10 31 10 18 10 07 9 57 9 49 9 41 9 34 9 28 9 23 9 27 9 06 8 57 8 49 8 24 8 35 8 29 8 24 8 18 8 13 8 08	1 58 2 04 2 16 2 27 2 38 2 2 48 2 57 3 06 3 18 3 29 3 40 3 50 3 59 4 07 4 23 4 36 4 49 4 50 9 5 17 5 33 5 46 6 5 57 7 05 6 23 6 30 6 36 6 41 6 46 6 57 7 7 05 7 12 7 18 7 25 7 30 7 44 7 48	14 11 14 05 13 53 13 42 13 31 13 21 13 12 13 12 13 12 14 00 12 29 12 19 12 10 12 02 11 46 11 33 11 20 11 10 11 00 10 51 10 22 10 11 10 01 9 53 9 32 9 27 9 21 9 10 9 01 8 536 8 39 8 33 8 28 8 28 8 17 8 12
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Jan. 1st to 15th Jan. 1st to 15th 17	6 33 9 35 6 30 9 38 6 26 6 41 9 27 6 38 9 30 6 34 6 48 9 20 6 45 9 23 6 41 6 54 9 14 6 51 9 17 6 47 6 59 9 09 6 56 9 12 6 52 7 04 9 03 7 01 9 06 6 57 7 15 8 52 7 12 8 55 7 08 7 23 8 43 7 20 8 46 7 16 7 30 8 35 7 27 8 38 7 23 7 36 8 28 7 33 8 31 7 29 7 43 8 21 7 40 8 24 7 36 7 55 8 04 7 55 8 18 7 41 7 52 8 10 7 49 8 13 7 45 7 58 8 04 7 55 8 07 7 51 8 02 7 59 8 02 7 55 8 06 7 54 8 03 7 57 7 59 8 02 7 55 8 06 7 54 8 03 7 57 7 59	6 33 9 35 6 30 9 38 6 26 9 42 6 41 9 27 6 38 9 30 6 34 9 34 6 48 9 20 6 45 9 23 6 41 9 27 6 54 9 14 6 51 9 17 6 47 9 21 6 59 9 09 6 56 9 12 6 52 9 16 7 04 9 03 7 01 9 06 6 57 9 10 7 15 8 52 7 12 8 55 7 08 8 59 7 23 8 43 7 20 8 46 7 16 8 50 7 30 8 35 7 27 8 38 7 23 8 42 7 36 8 28 7 33 8 31 7 29 8 35 7 48 8 15 7 45 8 18 7 41 8 22 7 52 8 10 7 49 8 13 7 45 8 17 7 58 8 04 7 55 8 07 7 51 8 11 8 02 7 59 7 59 8 02 7 55 8 06 8 06 7 54 8 03 7 57 7 59 8 01 Day of Month. Jan. Feb. Mar. Apr.	6 33 9 35 6 30 9 38 6 26 9 42 6 22 6 41 9 27 6 38 9 30 6 34 9 34 6 30 6 48 9 20 6 45 9 23 6 41 9 27 6 37 6 54 9 14 6 51 9 17 6 47 9 21 6 48 6 59 9 09 6 56 9 12 6 52 9 16 6 48 7 04 9 03 7 01 9 06 6 57 9 10 6 53 7 15 8 52 7 12 8 55 7 08 8 59 7 04 7 23 8 43 7 20 8 46 7 16 8 50 7 12 7 30 8 35 7 27 8 38 7 23 8 42 7 19 7 36 8 28 7 33 8 31 7 29 8 35 7 25 7 43 8 21 7 40 8 24 7 36 8 28 7 32 7 48 8 15 7 45 8 18 7 41 8 22 7 37 7 52 8 10 7 49 8 13 7 45 8 17 7 41 7 58 8 04 7 55 8 07 7 51 8 11 7 47 8 02 7 59 8 03 7 57 7 59 8 01 7 55 8 06 7 51 8 10 7 45 8 10 7 45 8 17 7 45	6 33 9 35 6 30 9 38 6 26 9 42 6 22 9 46 6 41 9 27 6 38 9 30 6 34 9 34 6 30 9 38 6 48 9 20 6 45 9 23 6 41 9 27 6 37 9 31 6 54 9 14 6 51 9 17 6 47 9 21 6 43 9 25 6 59 9 09 6 56 9 12 6 52 9 16 6 48 9 20 7 04 9 03 7 01 9 06 6 57 9 10 6 53 9 14 7 15 8 52 7 12 8 55 7 08 8 59 7 04 9 03 7 01 9 06 6 57 9 10 6 53 9 14 7 23 8 43 7 20 8 46 7 16 8 50 7 12 8 54 7 23 8 43 7 20 8 46 7 16 8 50 7 12 8 54 7 30 8 35 7 27 8 38 7 23 8 42 7 19 8 46 7 36 8 28 7 33 8 31 7 29 8 35 7 25 8 39 7 43 8 21 7 40 8 24 7 36 8 28 7 32 8 32 7 48 8 15 7 45 8 18 7 41 8 22 7 37 8 26 7 52 8 10 7 49 8 13 7 45 8 17 7 41 8 21 7 58 8 04 7 55 8 07 7 51 8 11 7 47 8 15 8 02 7 59 8 04 7 55 8 06 7 51 8 10 7 55 8 05 8 06 7 54 8 03 7 57 7 59 8 01 7 55 8 05 8 05 8 06 7 51 8 10 8 05 8 0	6 33 9 35 6 30 9 38 6 26 9 42 6 22 9 46 6 19 6 41 9 27 6 38 9 30 6 34 9 34 6 30 9 38 6 27 6 48 9 20 6 45 9 23 6 41 9 27 6 37 9 31 6 34 6 54 9 14 6 51 9 17 6 47 9 21 6 43 9 25 6 40 6 59 9 09 6 56 9 12 6 52 9 16 6 48 9 20 6 45 7 04 9 03 7 01 9 06 6 57 9 10 6 53 9 14 6 50 7 15 8 52 7 12 8 55 7 08 8 59 7 04 9 03 7 01 7 15 8 52 7 12 8 38 7 23 8 42 7 19 8 46 7 16 7 36 8 28 7 33 8 31 7 29 8 35 7 25 8 39 7 22 7 43 8 21 7 40 8 24 7 36 8 28 7 32 8 32 7 29 7 30 8 35 7 45 8 18 7 41 8 22 7 37 8 26 7 34 8 20 7 59 8 02 7 55 8 06 7 54 8 03 7 57 7 59 8 01 7 55 8 05 7 52 8 30 7 22 8 36 7 37 8 36 7 37 8 38 7 38 7 39 8 31 7 45 8 11 7 47 8 15 7 44 8 26 7 34 8 26 7 34 8 26 7 34 8 36 7 36 7 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 7 36 8 36 8 36	6 33 9 35 6 30 9 38 6 26 9 42 6 22 9 46 6 19 9 49 6 41 9 27 6 38 9 30 6 34 9 34 6 30 9 38 6 27 9 41 6 48 9 20 6 45 9 23 6 41 9 27 6 37 9 31 6 34 9 34 6 59 9 09 6 56 9 12 6 52 9 16 6 48 9 20 6 45 9 23 6 45 9 21 6 43 9 25 6 40 9 28 6 59 9 09 6 56 9 12 6 52 9 16 6 48 9 20 6 45 9 23 7 04 9 03 7 01 9 06 6 57 9 10 6 53 9 14 6 50 9 17 7 15 8 52 7 12 8 55 7 08 8 59 7 04 9 03 7 01 9 06 7 23 8 43 7 20 8 46 7 16 8 50 7 12 8 54 7 09 8 57 7 30 8 35 7 27 8 38 7 23 8 42 7 19 8 46 7 16 8 49 7 36 8 28 7 33 8 31 7 29 8 35 7 25 8 39 7 22 8 42 7 43 8 21 7 40 8 24 7 36 8 28 7 32 8 32 7 29 8 35 7 25 8 30 7 22 8 42 7 19 8 46 7 16 8 49 7 48 8 15 7 45 8 18 7 41 8 22 7 37 8 26 7 34 8 29 7 59 8 02 7 55 8 06 7 54 8 03 7 57 7 59 8 01 7 55 8 05 7 52 8 08 8 04 7 55 8 06 7 54 8 03 7 57 7 59 8 01 7 55 8 05 7 52 8 08	6 33 9 35 6 30 9 38 6 26 9 42 6 22 9 46 6 19 9 49 6 15 6 48 9 20 6 45 9 23 6 41 9 27 6 37 9 31 6 34 9 34 6 30 6 54 9 14 6 51 9 17 6 47 9 21 6 43 9 25 6 40 9 28 6 36 6 59 9 09 6 56 9 12 6 52 9 16 6 48 9 20 6 45 9 23 6 41 7 04 9 03 7 01 9 06 6 57 9 10 6 53 9 14 6 50 9 17 6 46 7 15 8 52 7 12 8 55 7 08 8 59 7 04 9 03 7 01 9 06 6 57 7 23 8 43 7 20 8 46 7 16 8 50 7 12 8 54 7 09 8 57 7 05 7 30 8 35 7 27 8 38 7 23 8 42 7 19 8 46 7 16 8 49 7 12 7 36 8 28 7 33 8 31 7 29 8 35 7 25 8 39 7 22 8 42 7 18 7 43 8 21 7 40 8 24 7 36 8 28 7 33 8 31 7 45 8 17 7 41 8 21 7 38 8 29 7 30 8 04 7 55 8 07 7 55 8 06 7 51 8 10 7 48 8 13 7 44 8 06 7 54 8 03 7 57 7 59 8 01 7 55 8 05 7 52 8 08 7 48 8 15 7 45 8 18 7 45 8 17 7 41 8 21 7 38 8 24 7 36 8 02 7 59 7 59 8 02 7 55 8 06 7 51 8 10 7 48 8 13 7 44 7 56 8 06 7 54 8 03 7 57 7 59 8 01 7 55 8 05 7 52 8 08 7 48 8 15 7 45 8 18 7 45 8 17 7 41 8 21 7 38 8 24 7 34 8 29 7 30 7 55 8 06 7 51 8 10 7 48 8 13 7 44 7 55 8 06 7 54 8 03 7 57 7 59 8 01 7 55 8 05 7 52 8 08 7 48 8 15 7 45 8 18 7 45 8 17 7 47 8 15 7 44 8 18 7 40 8 02 7 59 7 59 8 02 7 55 8 06 7 51 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 15 7 45 8 17 7 47 8 15 7 44 8 18 7 40 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 13 7 44 8 10 7 48 8 10 7 48 8 10 7 48 8 10 7 48 8 10 7 48 8 10 7 48 8 10 7 48 8 10 7 48 8 10 7 48 8 10

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

					HEI	GHT OF	THE E	EYE.				
	71 F	eet.	72 F	'eet.	73 F	eet.	74 F	eet.	75 F	eet.	76 F	eet.
OBS. ALT.	Sun's Corr. (+)	* Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	⊙ Sum's Corr.	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 50 9 00 20 40 11 00 20 40 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 19 00 22 00 24 00 25 00 26 00 27 00 28 00 20 00 30 00 3	0 00 0 20 0 30 0 0 39 0 0 48 1 35 1 42 1 1 35 1 1 22 13 1 2 2 35 1 42 2 2 45 2 2 45 2 2 45 3 3 15 3 26 3 37 3 47 6 6 12 2 13 4 20 3 4 4 5 6 6 20 6 27 7 27 27 7 27 7 37 7 41 7 45	16 09 15 49 15 39 15 39 15 30 15 12 15 12 15 04 14 48 14 41 14 34 14 27 14 20 14 14 14 13 15 13 16 13 35 13 34 13 24 13 15 13 25 11 13 12 32 12 12 12 12 12 12 13 11 03 11 03 11 13 11 03 11 13 11 03 11 03 11 13 11 03 11 03 11 13 11 03 11 05 10 14 10 04 9 48 9 41 9 35 10 14 9 13 9 05 8 49 9 13 9 04 9 13 9 04 9 13 9 14 9 15 8 26 8 26 8 15	-0 4 +0 06 0 16 0 26 0 35 1 01 1 109 1 17 1 24 1 31 1 31 1 45 1 45 1 1 57 2 20 2 23 2 31 2 41 2 50 2 25 3 32 2 41 2 50 2 55 3 6 08 6 16 6 23 6 29 6 50 6 6 50 6 6 50 6 6 50 6 6 50 6 6 50 6 6 7 7 11 7 18 7 27 7 33 7 7 33 7 7 37 +7 41	16 13 16 03 15 53 15 43 15 34 15 15 16 15 16 15 08 15 00 14 52 14 45 14 18 14 12 14 00 13 38 13 19 13 10 12 58 12 47 12 36 12 26 12 17 12 09 11 53 11 40 11 27 11 17 11 07 10 58 10 10 10 10 10 10 10 10 10 10 10 10 10	-0 02 -0 02 -0 02 0 12 0 22 0 31 0 49 0 57 1 13 1 20 1 27 1 34 1 147 1 53 2 2 16 2 2 27 2 37 2 46 3 39 3 39 3 39 3 3 48 4 12 4 25 5 35 5 46 6 12 6 19 6 25 6 36 6 46 6 54 7 7 7 14 7 7 19 7 23 7 29 7 33 +7 37	16 17 16 07 15 57 15 47 15 38 15 29 15 12 15 04 14 49 14 42 14 35 14 28 14 16 14 04 13 53 13 14 13 02 12 13 13 23 13 14 13 02 12 21 11 57 11 11 11 11 11 11 11 11 11 11 11 11 11 11	-0 1 19 1 28 1 37 6 1 1 54 1 1 24 1 31 1 1 38 1 1 44 1 1 50 2 2 1 3 3 2 2 4 4 3 5 2 5 2 2 3 3 1 5 3 3 6 6 3 3 4 5 3 3 5 3 9 4 2 2 2 3 3 3 4 5 3 3 5 3 9 4 2 2 3 3 1 5 6 0 1 6 0 9 6 1 6 6 2 2 6 6 3 2 6 6 5 1 7 7 1 6 6 5 8 7 0 4 7 1 1 6 7 2 0 6 7 3 3 4 7 1 1 6 7 3 4 7 1 1 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	16 20 16 10 16 10 16 10 16 10 15 20 15 41 15 32 15 15 15 15 15 15 14 59 14 52 14 45 14 19 14 25 14 19 13 56 13 35 13 26 13 17 13 05 12 24 12 16 12 10 12 10 13 10 14 11 14 11 12 11 14 11 14 11 10 11 10	-0 14 -0 04 +0 06 0 25 0 34 0 51 0 59 1 107 1 128 1 35 1 41 1 21 1 28 1 35 1 41 1 21 2 31 2 40 2 21 3 12 3 23 3 33 3 34 2 4 4 2 4 9 3 0 51 6 6 6 19 6 6 24 6 6 29 6 40 6 6 48 6 6 7 01 7 08 7 7 17 7 23 7 27 +7 31	16 23 16 03 15 53 15 44 15 35 15 26 15 18 15 10 15 02 14 48 14 41 14 34 14 22 14 10 13 59 13 20 13 08 12 27 12 13 13 08 12 27 12 13 13 08 12 27 12 13 13 08 12 27 12 19 10 10 2 11 37 11 17 11 17 11 10 10 10 10 10 02 9 55 9 49 9 9 44 9 9 38 8 39 9 27 9 9 10 9 9 03 8 56 8 8 39 8 8 45 8 8 29	-0 17 -0 07 +0 03 0 13 0 22 0 31 0 48 0 56 1 04 1 11 1 18 1 25 1 32 1 38 2 2 88 3 30 3 34 1 56 2 2 88 3 30 3 30 3 34 4 43 4 49 4 49 4 49 4 57 5 13 5 26 6 53 7 7 10 6 6 52 6 6 58 7 05 7 14 7 24 +7 28	16 26 16 16 26 16 16 06 15 56 15 47 15 38 15 29 15 21 15 13 15 05 14 58 14 44 14 37 14 25 14 13 14 02 13 31 11 3 23 13 11 13 32 12 39 12 39 12 39 11 2 30 11 2 49 11 2 30 11 2 49 11 2 30 11 2 10 11 10 11 10 11 10 10 13 10 05 9 58 9 47 9 9 21 9 21
Appress	NAL CORR		of Month	Jan.	Feb.	far. Apr		June. Ju	lly. Aug.	Sept.	Oct. No	v. Dec

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. for Sun's Alt.	1st to 15th 16th to 31st		$+15 \\ +12$	+8 +4	0 -4	- 8 -11	-13 -14	$-14 \\ -13$	-11 - 9	-5 -1			+16 +18

^{*}The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

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TABLE 46.

	1				HE	GHT O	THE E	EYE.				
Ong As-	77]	Feet.	78 1	Feet.	79 1	eet.	80 1	Peet.	81 I	eet.	82 I	Peet.
OBS. ALT.	⊙ Sun's Corr.	star's Corr. (-)	Sun's Corr.	star's Corr. (-)	⊙ Sun's Corr.	star's Corr. (-)	Sun's Corr.	star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr,	star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 50 8 00 10 20 8 30 40 10 00 20 40 11 00 20 40 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 19 00 22 00 24 00 22 00 24 00 25 00 26 00 27 00 28 00 29 00 20 0	7 21 -0 11 -0 11 +0 09 0 27 0 36 0 52 1 00 1 07 1 12 1 28 1 34 1 40 2 23 2 14 1 20 3 16 2 33 3 16 3 3 43 3 3 59 2 2 33 3 4 4 55 5 5 33 3 3 5 5 5 5 5 5 5 5 5 5 6 6 6 12 7 20 +7 47 47 47 47 47 47 47 47 47 4	16 30 16 20 16 10 15 51 15 42 15 33 15 17 15 09 15 02 14 55 13 15 14 14 35 14 29 14 35 13 36 13 36 13 36 13 27 13 15 13 26 12 10 13 35 11 10 4 12 26 12 10 35 11 10 4 11 24 11 24 11 10 59 10 02 9 56 9 51 10 09 9 51 9 34 9 9 25 9 9 10 9 9 38 8 57 8 8 36	7 24 -0 14 -0 06 0 15 0 24 0 33 0 41 1 11 1 37 1 20 1 11 1 22 1 31 1 37 1 20 2 11 2 30 2 11 2 30 2 31 3 3 3 3 40 3 56 4 9 5 7 10 4 9 6 30 6 49 6 30 6 49 7 7 13 7 13 8 14 8 15 8	16 33 16 23 16 13 15 54 15 20 15 15 20 15 12 25 15 05 14 58 15 20 14 4 51 14 44 14 38 14 32 14 09 13 58 13 30 13 18 13 30 12 26 12 29 12 13 12 29 12 13 12 14 14 37 11 27 11 37 11 27 11 38 10 28 11 10 29 11 10 38 11 10 29 11 10 20 11 20 2	7 28 -0 18 -0 02 -0 18 -0 02 -0 18 -0 02 -0 11 0 20 0 29 7 0 35 3 1 00 7 12 2 25 8 3 3 1 1 1 27 3 1 3 4 5 6 6 2 6 4 7 2 2 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	16 37 16 27 16 17 15 58 15 49 15 32 15 16 15 15 15 24 15 16 15 09 15 15 24 14 36 14 42 14 36 14 42 14 13 14 02 13 33 14 13 22 13 11 12 33 12 17 12 13 13 11 11 31 12 17 11 11 31 11 11 31 11 11 26 10 53 10 42 10 16 16 10 09 10 03 9 58 9 41 9 9 17 9 9 04 8 53 8 48 8 43	7 0 31 -0 21 -0 01 +0 08 0 17 0 26 0 34 0 50 0 57 1 01 1 18 1 24 1 30 2 0 50 0 57 1 01 1 18 1 24 2 23 2 24 2 15 3 36 3 25 3 36 3 37 4 25 5 36 6 37 6 38 6 38 6 31 6 6 6 7 00 6 7 10 7	16 40 16 30 16 20 16 10 16 10 15 52 15 43 15 35 15 27 15 19 15 12 15 45 14 45 14 45 13 35 13 25 13 14 13 35 13 14 12 36 12 20 11 54 12 36 12 20 11 54 11 34 11 35 12 36 12 20 11 54 11 34 11 35 12 36 12 20 12 10 06 10 07 10 06 10 07 10 06 10 07 10 07	7 0 34 -0 24 -0 14 +0 05 0 14 0 23 0 31 0 39 0 47 0 54 1 101 1 22 2 01 2 11 1 22 2 29 2 41 2 29 2 41 2 29 2 43 3 3 3 3 3 46 5 5 53 5 5 59 6 6 09 6 20 6 21 6 48 6 53 7 7 07 +7 1 1	16 43 16 33 16 13 16 13 16 13 16 04 15 55 15 46 15 30 15 22 15 15 01 14 54 14 48 14 42 14 19 14 408 13 58 13 17 13 06 12 23 13 17 12 23 12 15 15 13 28 13 17 11 37 11 37 11 37 11 12 10 59 10 48 10 30 10 09 10 09 10 09 10 9 58 10 9 10 10 9 55 10 8 49 10 9 55 10 9 10 10 9 55 10	$ \begin{array}{c} " \\ -0 \\ 37 \\ -0 \\ 27 \\ -0 \\ 17 \\ -0 \\ 07 \\ 07 \\ -0 \\ 07 \\ 07 \\ 07 \\ 0$	16 46 16 36 16 26 16 16 16 16 16 16 16 16 15 49 15 41 15 33 15 25 15 18 15 11 14 45 14 31 14 22 14 11 14 01 13 52 13 43 14 22 14 11 14 01 13 52 12 12 26 12 13 43 13 10 25 12 10 51 11 10 51 11 10 51 11 10 71 10

	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Additional Corr. for Sun's Alt.			+15 +12	+8 +4	0 -4	- 8 -11	-13 -14	-14 -13	-11 - 9	-5 -1	+3 +7	+11 +14	$^{''}_{+16}_{+18}$

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16′. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

Corrections* to be Applied to the Observed Altitude of a Star or of the Sun's Lower Limb, to Find the True Altitude—Continued.

					HE	IGHT O	F THE	EYE.				
0 4	83 F	eet.	84 Fe	et.	85	Feet.	86	Feet.	87 F	eet.	88 F	'eet.
Obs. Alt.	⊙ Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	Star's Corr. (-)	⊙ Sun's Corr.	Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 20 8 30 40 50 9 00 20 40 11 00 20 40 11 00 12 00 13 00 13 00 15 00 16 00 17 00 18 00 19 00 20 00 30 00	-0 41 -0 31 -0 21 -0 11 -0 021 -0 11 -0 024 0 32 0 40 0 54 1 101 1 20 1 32 1 43 1 54 2 24 2 45 2 34 2 25 6 3 06 3 3 3 3 3 39 3 52 3 4 4 25 4 4 33 5 5 31 5 5 52 5 5 52 6 6 13 6 24 6 46 6 56 7 00 +7 04	16 50 16 30 16 20 16 10 16 30 16 10 16 10 15 53 15 45 15 37 15 22 15 15 29 15 22 15 15 15 14 49 14 26 13 35 14 49 14 26 13 35 13 24 13 13 13 13 03 12 17 13 35 12 20 12 17 13 35 10 45 10 10 45 10 10 55 10 05 10 05 1	-0 44 -0 344 -0 344 -0 24 -0 145 -0 05 +0 04 0 13 0 21 0 29 0 37 0 44 0 51 1 11 1 17 1 29 1 30 2 19 2 2 42 2 53 3 3 3 3 12 2 4 22 4 30 4 4 59 5 5 59 6 10 6 25 6 38 6 43 6 57 -7 70 Month.	16 43 16 43 16 33 16 14 16 33 16 16 23 16 16 15 15 56 15 48 15 40 15 56 15 48 15 15 11 14 58 14 40 14 18 13 59 14 14 18 13 16 13 38 13 27 13 16 12 57 12 49 12 33 12 20 11 57 11 47 11 38 10 19 10 08 9 48 9 48 9 9 10 9 10 10 10 10 10 10 10 10 1	7 47 -0 47 -0 37 -0 17 -0 17 -0 10	9 23 9 18 9 12 9 07	6 32 6 37 6 41 6 47 6 51 +6 55		-0 53 -0 43 -0 33 -0 23 -0 105 +0 04 0 12 0 20 0 28 0 42 0 49 0 50 1 20 1 108 1 20 1 1 42 1 52 2 20 1 2 20 2 22 2 33 2 44 2 54 3 03 3 11 3 27 3 4 03 4 13 4 21 5 40 5 50 6 6 22 6 29 6 34 6 48 +6 52 1 y. Aug.	17 02 16 52 16 42 16 32 16 23 16 23 16 23 15 25 15 27 15 20 15 13 15 07 15 21 15 34 15 27 15 20 15 13 15 07 15 41 11 3 36 13 25 13 15 13 25 13 15 13 25 13 15 13 15 10 28 10 2	-0 57 -0 47 -0 37 -0 27 -0 18 -0 09 +0 08 0 16 0 24 0 31 0 38 0 45 0 52 0 58 1 04 1 16 1 27 1 38 1 48 1 57 2 06 2 18 2 29 2 40 2 50 3 3 36 3 3 4 3 3 59 4 09 4 17 4 33 5 36 5 36 5 57 6 05 6 18 6 24 6 44 +6 48 Oct. No.	17 066 16 46 16 36 16 46 16 36 16 27 16 18 16 18 16 09 16 01 15 53 15 38 15 31 15 24 15 17 15 11 15 05 14 53 14 42 14 12 14 12 14 03 13 13 13 40 13 29 13 19 13 10 13 02 12 46 12 33 12 20 12 10 13 02 11 11 11 01 13 02 11 11 11 01 13 02 12 10 10 10 10 10 11 51 11 10 13 10 14 52 11 11 11 01 10 53 10 45 10 22 11 11 11 01 10 53 10 45 10 29 17 10 21 10 10 10 10 10 10 10 10 10 10 10 10 10 53 10 22 11 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 53 10 22 11 10
	NAL CORR. JN'S ALT.	1st	to 15th	. +18	+15	+8	0 - 8		" " 14 -11	-5	+3 +1	1 +16

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16′. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the loot of the main table.

- 8 -11 $-13 \\ -14$ $-14 \\ -13$

-11 - 9 $^{+11}_{+14}$ $^{+16}_{+18}$

1st to 15th.... +18 +15 16th to 31st... +17 +12

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TABLE 46.

					H	EIGHT OI	THE	EYE.				
	89 F	Feet.	90 F	eet.	91	Feet.	92	Feet.	93	Feet.	94 F	eet.
OBS. ALT.	⊙ Sun's Corr.	star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	Star's Corr. (-)	⊙ Sun's Corr.	Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	Star's Corr. (-)
6 30 50 7 00 10 20 8 00 10 20 8 30 40 50 8 00 20 40 10 00 20 40 11 00 30 12 00 30 13 00 31 00 31 00 30 14 00 15 00 16 00 17 00 20 22 00 22 00 22 00 24 00 22 00 22 00 24 00 25 00 26 00 27 00 28 00 20 00	-1 050 -0 40 -0 30 -0 21 -0 05 -0 13 0 218 -0 05 0 13 0 228 0 42 0 0 55 1 13 1 245 1 247 2 2 37 2 2 47 2 3 3 46 4 4 30 4 4 30 5 5 20 6 37 6 6 45 6 6 22 7 6 31 6 6 45 6 6 6 6 6 6 7 6 6 6 6 7 6 6 6 7 7 6 6 7 7 6 6 7 7 6 6 7 7 7 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	17 09 16 49 16 39 16 39 16 30 16 21 16 12 16 04 15 56 15 41 15 34 15 27 15 20 15 14 45 14 15 14 15 14 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 15 14 15 16 10 41 17 10 56 18 11 15 14 19 56 10 24 11 10 35 10 30 10 24 10 13 10 10 30 10 24 10 10 35 10 29 10 9 10 1	-1 0 33 -0 43 -0 33 -0 24 -0 10 00 -0 10	7 12 17 12 17 12 16 52 16 42 16 33 16 24 16 15 16 07 15 59 15 51 15 14 15 37 15 30 15 23 16 14 48 14 37 15 13 46 13 35 13 16 17 13 46 13 35 13 16 17 11 12 12 12 12 12 12 12 12 12 12 12 12	-1 06 -0 46 -0 36 -0 27 -0 18 -0 07 0 12 0 29 0 36 0 43 0 43 0 43 1 1 29 1 1 29 1 2 41 1 2 58 3 14 4 24 4 37 4 4 58 5 5 14 6 6 35 6 6 31 6 6 35 6 6 31 6 6 35 6 6 36 6 7 6 7 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	17 15 17 05 16 55 16 36 16 27 16 18 16 10 27 16 18 15 47 15 40 15 33 15 26 15 20 15 14 40 14 30 14 31 11 12 14 21 14 11 11 11 11 11 11 11 11 11 11 10 11 10 21 10 54 11 10 36 10 30 10 19 10 10 02 9 55 9 48 9 42 9 37 9 31 9 26 9 21	-1 099 -0 499 -0 39 -0 30 -0 212 -0 049 -0 39 -0 30 -0 212 -0 044 0 122 0 199 0 266 0 333 0 406 0 522 1 044 1 155 1 266 2 177 2 288 2 388 2 477 2 553 3 111 3 244 3 377 3 477 4 055 4 211 5 184 4 355 5 03 5 111 5 188 5 249 5 344 5 455 5 533 6 00 6 6 66 6 13 6 6 22 6 28 6 33 6 4 36	17 18 17 08 16 58 16 48 16 39 16 30 16 21 16 13 16 05 15 57 15 50 15 43 15 36 15 29 15 23 15 17 15 05 14 54 14 13 31 14 24 14 15 14 03 13 32 12 12 12 12 12 12 12 12 13 14 17 11 34 11 05 10 57 10 50 10 44 10 39 10 33 10 22 10 13 10 05 9 58 9 51 9 40 9 34 9 29 9 24	-1 12 -1 02 -0 52 -0 42 -0 33 -0 24 -0 15 -0 07 +0 01 00 90 0 16 0 23 0 30 0 37 0 43 1 33 1 42 1 51 2 03 3 1 42 2 25 2 35 2 2 44 2 52 2 35 2 2 44 18 4 4 02 4 18 4 3 54 4 4 02 4 52 5 00 5 58 5 15 5 20 5 57 6 03 6 10 6 15 5 26 6 25 +6 33 -1 5 42 5 50 6 6 19 6 25 6 6 29 +6 33 -1 5 42 5 50 6 6 15 6 6 19 6 25 6 6 29 6 25 6 6 33 -1 5 42 5 50 6 6 15 6 6 19 6 25 6 6 33 -1 5 42 5 50 6 6 15 6 6 19 6 25 6 6 33 -1 5 42 5 50 6 6 15 6 6 19 6 25 6 6 33 -1 5 42 5 50 6 6 15 6 6 19 6 25 6 6 33 -1 5 42 5 50 6 6 15 6 15		-1 15 -1 05 -0 55 -0 45 -0 36 -0 27 -0 18 -0 10 -0 02 +0 06 0 13 0 20 0 27 0 34 0 46 0 58 1 09 1 30 1 39 1 48 2 20 2 32 2 41 2 22 2 32 2 41 2 49 3 05 3 18 3 51 3 51 3 59 4 4 57 5 5 12 5 5 18 5 5 28 5 5 39 5 5 47 6 6 07 6 6 12 6 6 26 6 6 30 -0 00 -0 00	17 24 17 14 17 04 16 54 16 16 16 16 16 17 16 16 17 16 16 17 16 16 17 15 42 15 32 15 17 11 15 00 14 4 39 14 30 14 27 13 28 13 14 14 19 11 19 11 10 50 11 10 5
4			of Month.		[-	Mar. Apr	_		lly. Aug.			
ADDITIO:	NAL CORR.	.		11	11	11 11	11	"	11 11	11	11 11	, , ,,

Additional Corr. for Sun's Alt.	Day of Month.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
	lst to 15th 16th to 31st		+15 +12	+8 +4	0 -4	- 8 -11	-13 -14	-14 -13	-11 - 9	-5 -1	+3 +7	$^{''}_{+11}_{+14}$	+16 +18

^{*} The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16′. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the foot of the main table.

Corrections* to be Applied to the Observed Altitude of a Star or of the Sun's Lower Limb, to Find the True Altitude—Continued.

		HEIGHT OF THE EYE.										
0 1	95 F	eet.	96 Fe	et.	97 1	Feet.	98 I	Peet.	99 1	eet.	100]	Feet.
Obs. Alt.	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)	Sun's Corr.	* Star's Corr. (-)
6 30 40 50 7 00 10 20 7 30 40 50 8 00 10 20 8 30 40 10 00 20 40 11 00 20 40 11 00 12 00 13 00 14 00 15 00 16 00 17 00 18 00 20 00 22 00 24 00 25 00 26 00 27 30 20 00 20 0	7 1 08 -0 108 -0 108 -0 108 -0 108 -0 108 -0 108 -0 108 -0 109 109 109 109 109 109 109 109 109 10	17 27 17 17 17 17 17 17 17 17 17 17 17 17 17 1	"-1 21 -1 11 -0 51 -0 42 -0 33 -0 24 -0 16 -0 08 -0 00 +0 14 0 21 0 28 0 34 0 0 52 1 03 1 14 1 24 1 33 1 42 1 54 2 26 2 26 2 23 3 35 3 45 3 35 3 45 3 45 3 55 4 43 4 59 5 51 5 54 6 01 6 6 10 6 6 20 +6 24	7 30 17 30 17 10 17 10 16 51 16 25 16 33 16 25 16 17 16 09 15 55 15 48 15 41 15 35 15 17 14 45 14 45 14 27 14 15 14 27 14 15 14 27 14 15 14 27 14 15 15 35 13 34 13 34 13 20 12 24 14 12 21 15 13 53 13 13 13 13 13 13 13 13 13 13 13 13 13 1	"-1 24 -1 14 -1 0 54 -0 367 -0 19 -0 11 -0 03 +0 041 0 18 0 25 0 31 0 0 37 -0 19 -0 11 1 2 02 2 23 2 2 32 2 2 32 2 2 33 2 2 33 2 2 33 3 3 22 3 3 40 4 4 4 4 8 4 5 6 6 03 5 5 5 14 5 5 5 8 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1	5 55 6 00 6 04 6 10 6 14 +6 18	17 36 17 26 17 16 17 16 17 16 17 16 18 39 16 31 16 23 16 15 16 03 16 15 15 47 15 41 15 35 15 12 15 01 14 42 14 33 14 21 14 40 13 59 13 49 13 40 12 21 15 10 12 21 15 10 11 10 12 21 11 10 12 10 13 10 14 51 15 10 10 10	1	17 39 17 29 17 19 17 09 17 00 16 51 16 42 16 34 16 26 16 18 16 11 16 04 15 57 15 50 15 44 14 35 14 36 14 24 14 13 35 13 14 02 13 52 13 43 12 23 13 12 23 12 24 11 15 11 10 11 10 10 54 11 10 06 10 19 9 55 9 50 9 45	-1 33 -1 23 -1 33 -1 13 -1 03 -0 54 -0 45 -0 28 -0 20 -0 12 +0 02 0 09 0 16 0 22 0 28 0 40 0 51 1 12 1 1 30 1 42 1 1 30 1 42 1 4 31 2 47 4 5 00 5 5 10 5 5 42 5 5 48 6 08 +6 12	17 42 17 32 17 22 17 12 17 03 16 54 16 45 16 37 16 29 16 21 16 14 16 07 16 00 15 53 15 41 15 29 15 18 15 07 14 48 14 39 14 27 14 48 14 39 14 27 14 16 13 55 13 46 13 35 13 22 13 09 12 56 12 46 12 27 12 11 11 15 13 10 10 10 10 04 10 05 10 04 10 04
Addition for St	NAL CORR UN'S ALT.		to 15th	Jan. " +18	Feb. // +15	Mar. A	or. May. "0 - 8	"	uly. Aug	, , ,	Oct. No	" "

1st to 15th.... +18 +15 16th to 31st... +17 +12 $^{+3}_{+7}$ $^{+11}_{+14}$ $^{+8}_{+4}$ $-5 \\ -1$ -4+18* The corrections for the observed altitude of a Star or Planet involves the dip and the refraction; and for the observed altitude of the Sun's lower limb, the dip, refraction, parallax, and mean semidiameter, which is taken as 16'. A supplementary correction taking account of the variation of the Sun's semidiameter in the different months of the year is given at the loot of the main table.

TABLE 47.

Longitude Factors.

 ${f F}$ is the change in longitude due to a change of 1' in latitude.

Latitude.

ear- ng.	0°	1°	2°	4 °	6°	8°	10°	12°	Bea ing
0	,	,			,	,	,	,	0
1	57. 29	57. 30	57. 32	57. 43	57. 61	57. 85	58. 17	58. 57	2 3
2	28. 64 19. 08	28. 64 19. 08	28. 65 19. 09	28. 71 19. 13	28. 79 19. 19	28. 92	29. 08 19. 38	29. 28	2
3 4	14. 30	14. 30	14. 31	19. 13	14. 38	19. 27 14. 44	19. 58	19.51 14.62	4
5	11. 43	11. 43	11. 44	11. 46	11. 49	11. 54	11. 61	11.69	1
6	9. 51	9. 52	9. 52	9. 54	9. 57	9. 61	9.66	9.73	
7	8. 14	8. 15	8. 15	8. 16	8. 19	8. 22	8. 27	8, 33	1
8	7. 12	7. 12	7.12	7. 13	7. 15	7. 18 5. 73	7. 22	7.27	
10	5. 67	5. 67	5. 68	5. 69	5. 70	5. 73	5. 76	5. 80	1
12 14	$4.71 \\ 4.01$	4.71 4.01	4.71 4.01	4. 72 4. 02	4. 73 4. 03	4.75	4.78	4.81	1 1
16	3. 49	3. 49	3. 49	3.50	3.51	4. 05 3. 52	4. 07 3. 54	4. 10 3. 56 3. 15	1
18	3. 08	3. 08	3. 08	3. 08	3. 10	3. 11	3. 13	3. 15	1:
30	2.75	2.75	2.75	2.75	2.76	2. 77	2.79	2. 81	2
22	2.47	2. 47	2.48	2.48	2.49	2. 50 2. 27	2. 51 2. 28	2. 81 2. 53 2. 30	2 2 2
24	2. 25	2.25	2. 25	2. 25	2. 26	2. 27	2. 28	2.30	2
26	2. 05	2.05	2.05	2.05	2.06	2. 07 1. 90	2. 08 1. 91	2. 10	2
88	1. 88 1. 73	1. 88 1. 73	1. 88 1. 73	1. 88 1. 74	1. 89 1. 74	1. 75	1. 76	2. 10 1. 92 1. 77	2 2 3 3 3
32	1. 60	1.60	1.60	1.60	1.61	1 62	1.63	1.64	3
34	1.48	1.48	1.48	1. 60 1. 49	1.49	1.50	1.50	1.52	3
36	1. 38	1.38	1.38	1. 38	1 38	1. 50 1. 39	1. 63 1. 50 1. 40 1. 30	1.41	3
38	1. 28	1. 28	1. 28 1. 19	1. 28 1. 19	1. 29 1. 20	1. 29	1.30	1. 31	3
10	1. 19	1. 19	1. 19 1. 11	1. 19 1. 11	$\begin{array}{c c} 1.20 \\ 1.12 \end{array}$	1. 29 1. 20 1. 12	1. 21 1. 13	1. 64 1. 52 1. 41 1. 31 1. 22 1. 14	4
12 14	1. 11 1. 04	1. 11 1. 04	1. 11	1. 11	1. 12	1. 12	1. 13	$\frac{1.14}{1.06}$	4:
46	. 97	. 97	. 97	. 97	.97	. 98	. 98	. 99	4
48	. 90	. 90	. 90	. 90	. 90	. 91	. 91	. 92	5
50	. 84	. 84	. 84	. 84	. 84	. 85	. 85 . 79	. 86	5
52	. 78	. 78	. 78	. 78	. 79	. 79	. 79	. 80	5
54 56	. 73 . 67	. 73 . 67	. 73 . 67	. 73 . 68	. 73 . 68	. 73 . 68	.74	. 74 . 69	5
58	. 63	. 63	. 63	. 63	. 63	. 63	. 68 . 63	. 64	5
30	. 58	. 58	. 58	. 58	. 58	. 58	. 59	. 59	6
62	. 53	. 53	. 53	. 53	. 53	. 58	. 59 . 54	. 54	6
64 .	. 49	. 49	. 49	. 49	. 49	. 49	. 50	. 50	6
66	. 45	. 45	. 45	. 45	. 45	. 45	. 45	. 46	6
88	. 40 . 36	. 40	. 40 . 36	. 40 . 36	. 40	. 41	. 41	$\begin{array}{c} \cdot 41 \\ \cdot 37 \end{array}$	6
72	. 33	. 33	. 33	. 33	. 33	. 33	. 33	.33	7
14	. 29	. 29	. 29	. 29	. 29	. 29	. 29	. 29	7
76	. 25	. 25	. 25	. 25	. 25	. 29	. 29	. 29 . 25	70
78	. 21	. 21	. 21	. 21	. 21	. 21	. 22 . 18 . 16	. 22	78
30 31	. 18	. 18 . 16	. 18 . 16	. 18	. 18	. 18	. 18	. 18 . 16	80
82	. 16	. 16	. 16	. 16	.16	. 16	. 16	. 16	8
83	.12	.12	. 12	. 12	. 12	. 12	. 12	. 13	8
34	. 10	. 10	. 10	. 10	. 10	. 10	. 11	. 11	84
35	. 09	. 09	. 09	. 09	. 09		. 09	. 09	8
36	. 07	. 07	. 07	. 07	. 07	. 07	. 07	. 07	80
87	. 05	. 05	. 05	. 05	.05	.05	.05	$\begin{array}{c} \textbf{.05} \\ \textbf{.04} \end{array}$	88
39	. 03	. 03	.03	.03	.03	.03	.03	$.04 \\ .02$	8
90	.00	. 00	.00	.00	. 00	.00	. 00	. 00	90
	0°	1°	2°	4°	6°	8°	10°	12°	

Corr. to Long .= Error in Lat.×F.

TABLE 47.

Longitude Factors.

 ${\bf F}$ is the change in longitude due to a change of 1^\prime in latitude.

Bear- ing.	14°	16°	18°	20°	22°	24°	26°	28°	Bear ing.
0	,	,	,	,	,		,	,	0
1	59. 04	59. 60	60. 24	60. 97	61. 79		63. 74	64, 88	1
2	29. 51	29. 79	30. 11	30. 47	30, 89	62. 71 31. 35	31. 86 21. 23 15. 91	32, 43	2 3 4
3	19. 67	19.85	20.06	20. 31 15. 22 12. 16	20. 58	20. 89 15. 65 12. 51	21. 23	21.61	3
4	14. 74	14. 88	15. 04	15. 22	15. 42 12. 33	15. 65	15. 91	16. 20	4
5	11. 78	11. 89	12. 02	12. 16	12. 33	12. 51	12. 72	12. 95	5 6
6	9. 81	9. 90	10.00	10. 12	10. 26	10.41	10. 59 9. 06	10.78	6
7	8. 39	8. 47	8. 56	8. 67	8. 78	8. 91 7. 79	7. 92	9. 22	8
8	7. 33	7. 40	7. 48	7. 57 6. 03	7. 67 6. 12	6. 21	6. 31	6.00	10
10 12	5. 85 4. 85	5. 90 4. 89	5. 96 4. 95	5.03	5. 07	5. 15	5. 23	8. 06 6. 42 5. 33	12
14	4. 13	4. 17	4. 22	5. 01 4. 27	4. 33	4. 39	4. 46	4. 54	14
16	3. 59	3. 63	3 67	3. 71	3. 76	3. 82	3. 88	4. 54 3. 95	16
18	3. 17	3. 20	3. 67 3. 24	3. 28	3. 32	3. 37	3. 42	3. 49	18
20	2. 83	2. 86	2. 89	2. 92	2.96	3. 01	3.06	3, 11	20
22	2. 55	2, 58	2. 60	2. 63	2. 67	2. 71	2.75	2.80	20 22 24
22 24	2. 32	2. 34	2. 36	2. 39	2, 42	2.46	2. 50	2 54	24
26	2. 11	2.13	2. 16	2. 18	2. 21	2. 24	2. 28	2. 32	26
28	1. 94	1.96	1. 98	2. 00	2. 03	2.06	2. 09	2. 32 2. 13 1. 96	26 28 30
30	1. 78	1. 80	1.82	1. 84	1. 87	1. 90	1. 93	1.96	30
32	1. 65	1. 66	1. 68	1. 70	1. 73	1. 75	1. 78	1. 81 1. 68	32 34
34	1. 53	1. 54 1. 43	1. 56 1. 45	1. 58 1. 47	1. 60	1. 62 1. 51	1. 65 1. 53	1. 56	36
36 38	1. 42 1. 32	1. 43	1. 45	1. 36	1. 48	1. 40	1. 42	1. 45	36 38 40
40	1. 32	1. 33	1. 25	1.30	1. 38 1. 28	1.30	1. 33	1.35	40
42	1. 14	1. 15	1. 17	1. 27 1. 18	1. 20	1. 22	1. 24	1. 35 1. 26	42
44	1. 07	1. 08	1. 09	1. 10	1. 12	1. 13	1. 15	1. 17	44
46	1.00	1.01	1. 02	1. 03	1.04	1.06	1. 07	1. 09	46
48	. 93	. 94	. 95	. 96	. 97	. 99	1.00	1.02	48
50	. 87 . 80	. 87	. 88	. 89	. 91	. 92	. 93	. 95	50
52	. 80	. 81	. 82	. 83	. 84	. 85	. 87	. 88 . 82	50 52 54
54	.75	. 76	. 76	. 77	. 78	. 79	. 81	. 82	54
56	. 69	. 70	.71	. 72	.73	. 74	. 75	. 76	56 58
58	. 64	. 65 . 60	. 66	. 66	. 67	. 68	. 69 . 64	. 71 . 65	60
60 62	. 60 . 55	. 55	. 61 . 56	. 61 . 57	. 62 . 57	. 58	. 59	. 60	69
64	.50	.51	.51	.52	. 53	. 53	. 54	. 55	62 64
66	. 46	. 46	.47	. 47	. 48	. 49	. 50	50	66
68	. 42	. 42	. 42	. 43	. 44	. 44	. 45	. 46	66 68
70	. 37	. 38	. 38	. 39	. 39	. 40	. 40	. 41	70
72	. 34	. 34	. 34	. 35	. 35	. 36	. 36	. 37	72
74	. 30	. 30	. 30	. 31	. 31	. 31	. 32	. 33	74
76	. 26 . 22	. 26	. 26	. 27	. 27	. 27	. 28	. 28	76
78	. 22	. 22	. 22	. 23	. 23	. 23	. 24	. 24	78
80	. 18	. 18	.18	. 19	. 19	. 19	. 20	. 20	80
81 82	. 16 . 14	. 16 . 15	. 17 . 15	.17	. 17	. 17 . 15	. 18 . 16	. 18	81 82 83 84
83	.13	.13	.13	.13	.13	.13	. 14	. 14	83
84	.11	.11	.11	.11	.11	.11	.12	. 12	84
85	. 09	. 09	. 09	. 09	. 09	. 10	. 10	. 10	85
86	. 07	. 07	.07	. 07	. 08	. 08	. 08	. 08	86
87	. 05	. 05	. 05	. 06	. 06	. 06	. 06	. 06	87
88	. 04	. 04	. 04	. 04	. 04	. 04	. 04	. 04	88
89 90	. 02 : 00	.02	.02	. 02	.02	.02	.02	. 02	89 90
	14°	16°	18°	20°	22°	24°	26°	28°	-

TABLE 47.

Longitude Factors.

 ${\bf F}$ is the change in longitude due to a change of 1' in latitude.

ear- ng.	30°	32°	34°	36°	38°	40°	42°	44 °	Bea ing
0	,	,	,		,	,	,	,	0
1	66. 15	67.56	69.10	70.81	72.70	74.79	77.09	79.64	1
2	33.07	33.77	34.54	35.40	36.34	37.38	38. 53	39.81	2
3	22.03	22.50	23.02	23. 59	24.21	24.91	25.68	26.53	4
4	16.51	16.86	17. 25 13. 79	17.68	18. 15	18.67	19. 24	19.88	4
5	13.20	13.48	13.79	17.68 14.13 11.76	14.50	14. 92 12. 42	15.38	15.89	
6	10.99	11.22	11.48	11.76	12.07	12.42	12.80 10.96 9.57	13.23	(
7	9.40	9.60	9.82	10.07	10.34	10. 63 9. 29	10.96	11.32	,
8	8.22	8.39	8.58	8.79	9.03	9. 29	9.57	9.89	1
10 12	6. 55 5. 43	6.69 5.55	6.84 5.67	7.01 5.81	7. 20 5. 97	7. 40 6. 14	7. 63 6. 33	7.88 6.54	1
14	4.63	. 4.73	4.84	4.96	5 09	5. 24	5.40	5.58	1
16	4.03	4.11	4. 21	4.31	4.43	4.55	4.69	4.85	1
18	3.55	3.63	3.71	3.80	3.91	4.02	4.14	4.28	19
20	3.17	3. 24	3.31	3.40	3.49	3.59	3.70	3.82	2
55	2.86	2.92	2.98	3.06	3. 14	3.23	3.33	3,44	2
24	2.59	2.65	2.71	2.78	2.85	2.93	3.02	3.12	1: 1: 1: 1: 2: 2: 2:
88 88	2.37	2.42	2.47	2.53	2.60	2.68	2.76	2.85	2
85	2.17	2.22	2.27	2.32	2.39	2.45	2.53	2.61	2
30	2.00	2.04	2.09	2.14	2.20	2.26	2. 33 2. 15	2. 61 2. 41 2. 22	3
32	1.85	1.89	1.93	1.98	2.03	2.09	2.15	2.22	3
34	1.71	1.75	1.79	1.83	1.88	1.93	1.99	2.06	3
36	1.59	1.62	1.66	1.70	1.75	1.80	1.85	1. 91 1. 78	3
38	1.48	1.51	1. 54 1. 44	1.58 1.47	$\begin{bmatrix} 1.62 \\ 1.51 \end{bmatrix}$	1.67	1.72	1.78	2 3 3 3 3 4
10	1.38 1.28	1.41 1.31	1. 44	1. 37	1. 51	$1.56 \\ 1.45$	$1.60 \\ 1.49$	1.66	4
12	1.20	1. 22	1. 25	1.28	1.31	1.35	1.39	1. 54 1. 44 1. 34	1
46	1.11	1.14	1.16	1. 19	1. 23	1. 26	1.30	1 34	4
48	1.04	1.06	1.09	1.11	1. 14	1. 17	1. 21.	1. 25	44 48 50 55 56 56
50	. 97	. 99	1.01	1.04	1.06	1.09	1. 13	1. 25 1. 17 1. 09	5
52	. 90	. 92	. 94	. 97	. 99	1.02	1.05	1.09	5
54	. 84	. 86	.88	. 90	. 92	. 95	.98	1.01	54
56	. 78	. 79	.81	. 83	. 86	. 88	.91	. 94	5
58	. 72	.74	.75	.77	. 79	. 82	.84	.87	5
60	. 67	. 68	. 70	.71	. 73	. 75	.78	.80	60
62	.61	. 63	. 64	.66	. 67	. 69	.72	.74	62
64	. 56	. 57	. 59	. 60 . 55	.62	. 64	.66	$\begin{array}{c} .68 \\ .62 \end{array}$	6
66 68 [†]	.51 .47	.52	.54	.50	.50	.58	.54	.56	6
701	.42	.43	.44	.45	.46	. 47	.49	.51	66
72	.37	.38	.39	.40	.41	.42	.44	.45	7
74	. 33	.34	.35	. 35	. 36	.37	.39	. 40	74
76	.33	.34	. 30	. 31	. 32	. 32	. 34	. 35	70
78	. 24	. 25 i	. 26	. 26	. 27	. 28	. 29	. 29	78
80	.20	. 21	. 21	. 22	. 22	. 23	.24	. 24	8
81	. 18	. 19	.19	. 20	. 20	. 21	.21	$.24 \\ .22$	77 76 76 86 85 85 86
82 83 84	. 16	.17	.17	. 17	.18	. 18	.19	. 19	87
24	.14	. 14	.15	.15	.16	.16	.16	$.17 \\ .15$	8
85	10	$\begin{bmatrix} .12 \\ .10 \end{bmatrix}$.13	.13	.13	.14	$\begin{array}{c c} .14 \\ .12 \end{array}$.15	8
86	. 10	.08	.11	$\begin{array}{c} .11 \\ .09 \end{array}$.09	.09	.09	.10	8
87	.06	.06	.06	.06	.07	.07	.07	.07	87
88	.04	.04	.04	.04	.04	.05	.05	.05	88
89	.02	.02	.02	.02	.02	.02	.02	.02	89
90	.00	.00	.00	.00	.00	.00	.00	.00	90
	30°	32°	34°	36°	38°	40°	42°	44°	

Longitude Factors.

 ${\bf F}$ is the change in longitude due to a change of 1' in latitude.

Latitude.

Bear- ing.	46°	48°	50°	52°	54 °	56°	58°	60°	Bea
-					,			,	
1	82. 47	85. 62	89. 13	93. 05	97.47	102. 5	108.1	114.6	
2	41. 22	42. 80	44. 55	46. 51	48.72	51. 21	54.04	57. 27	
3	27. 47	28. 52	29. 68	30. 99	32. 46	34. 12	36. 01	38. 16	
4	20. 59	21. 37	22. 25	23. 23	24. 33	25. 57	26. 99	28. 60	
5	16. 45	17. 08	17. 78	18. 57	19. 45	20. 44	21. 57	22. 86	
6	13. 70	14. 22	14. 80	15. 45	16. 19	17.01	17.95	19.03	
7	11. 72	12. 17	12.67	13. 23	13.86	14.56	15. 37	16. 29	
8	10. 24	10. 63	11. 07	11. 56	12. 11	12.72	13. 43	14. 23	
10	8. 16	8.48	8. 82	9. 21	9.65	10.14	10.70	11. 34	1
12	6. 77	7.03	7. 32	7.64	8.00	8.41	8.88	9.41	1
14	5. 77	5. 99	6. 24	6. 51	6.82	7. 17	7. 57	8. 02	1
16	5. 02	5. 21	5. 42	5. 66	5. 93	6. 24	6.58	6. 97	1
18	4. 43	4. 60	4. 79	5. 00	5. 24	5. 50	5. 81	6. 15	1
20	3. 95	4. 11	4. 27	4. 46	4. 67	4. 91	5. 19	5. 49	2
22	3. 56	3. 70	3. 85	4. 02	4.21	4. 43	4. 67	4.95	2 2
24 26	3. 23 2. 95	3. 36 3. 06	3. 49 3. 19	3. 65 3. 33	3. 82 3. 49	4. 02 3. 66	4. 24 3. 87	4. 49 4. 10	2
28	2. 95	2. 81	2. 93	3. 05	3. 49	3. 36	3. 55	3. 76	2 2
30	2. 49	2. 59	2. 69	2. 81	$\frac{3.20}{2.95}$	3. 10	3. 27	3. 46	3
32	2. 30	2. 39	2. 49	2. 60	$\frac{2.33}{2.72}$	2. 86	3. 02	3. 20	3
34	2. 13	2. 22	2. 31	2. 41	2. 52	2. 65	2. 80	2. 96	3
36	1. 98	2. 06	2. 14	2. 24	2. 34	2.46	2. 60	2. 75	3
38	1.84	1. 91	1.99	2. 08	2. 18	2. 29	2.41	2. 56	3
40	1.71	1. 78	1.85	1.94	2. 03	2. 13	2. 25	2. 38	4
42	1.60	1.66	1.73	1.80	1.89	1.99	2.09	2.22	4
44	1.49	1.55	1.61	1.68	1.76	1.85	1.95	2.07	4
46	1. 39	1.44	1. 50	1. 57	1.64	1.73	1.82	1.93	4
48	1. 30	1. 35	1.40	1.46	1.53	1. 61	1.70	1.80	4
50	1. 21	1. 25	1. 31	1.36	1. 43	1.50	1.58	1.68	5
52	1. 12	1. 17	1. 22	1. 27	1. 33	1.40	1.47	1. 56	5
54	1. 05 . 97	1. 09	1. 13	1. 18	1. 23	1.30	1. 37	1. 45	5 5
56 58	.90	$\begin{array}{c c} 1.01 \\ .93 \end{array}$	1. 05 . 97	$egin{array}{ccc} 1.10 \ 1.01 \end{array}$	1. 15 1. 06	1. 21 1. 12	1. 27 1. 18	1.35 1.25	5
60	. 83	.86	.90	.94	. 98	1. 12	1. 18	1. 25	6
62	. 77	.79	.83	.86	.90	. 95	1.00	1. 16	6
64	.70	.73	.76	.79	.83	.87	. 92	. 97	6
66	. 64	. 66	. 69	.72	.76	. 79	.84	.89	6
68	. 58	. 60	. 63	. 65	. 69	.72	. 76	.81	6
70	. 52	. 54	. 57	. 59	. 62	. 65	. 68	. 73	7
72	. 47	. 49	. 51	. 53	. 55	. 58	. 61	. 65	7
74	. 41	. 43	. 45	. 46	. 49	. 51	. 54	. 57	7
76	. 36	. 37	. 39	. 40	. 42	. 45	. 47	. 50	7
78	. 31	. 32	. 33	. 34	. 36	. 38	.40	. 42	7
80	. 25	. 26	. 27	. 29	. 30	. 31	. 33	. 35	8
81	. 23	. 24	. 25	. 26	. 27	. 28	. 30	. 32	8
82 83	. 20	. 21	. 22	. 23	. 24	. 25 . 22	. 26	. 28 . 25	8 8
84	.18	. 18	$\begin{array}{c c} .19 \\ .16 \end{array}$	$\frac{.20}{.17}$.18	.19	. 23	. 25	8
85	.13	. 13	.16	.14	.15	.19	.16	. 17	8
86	.13	. 10	.11	.11	. 12	$\stackrel{\cdot}{1}\stackrel{1}{1}\stackrel{1}{2}$.13	. 14	8
87	.08	. 10	.08	.08	. 09	.09	.10	. 10	8
88	. 05	. 05	.05	.06	. 06	.06	. 07	. 07	8
89	. 02	. 03	.03	. 03	. 03	. 03	. 03	. 03	8
90	.00	.00	.00	. 00	.00	:00	. 00	. 00	9
	46°	48°	50°	52°	54°	56°	58°	60°	

Corr. to Long.=Error in Lat. $\times \mathbf{F}$.

TABLE 48.

Latitude Factors.

f is the change in latitude due to a change of 1' in longitude.

ear-	0°	1°	2°	4°	6°	8°	10°	12°	Bea
0	,		,	,	,	,	,		-
1	0.02	0.02	0.02	0. 02	0.02	0. 02	0.02	0.02	
2	. 03	. 03	. 03	. 03	. 03	. 03	. 03	. 03	
2 3	. 05	. 05	. 05	. 05	. 05	. 05	. 05	. 05	
4	. 07	. 07	. 07	. 07	. 07	. 07	. 07	. 07	
5	. 09	. 09	. 09	. 09	. 09	. 09	. 09	. 09	
6	. 11	. 11	. 11	. 10	. 10	. 10	. 10	. 10	
7	. 12	. 12	. 12	. 12	. 12	. 12	. 12	. 12	
8	. 14	. 14	. 14	. 14	. 14	. 14	. 14	. 14	
10	. 18	. 18	. 18	. 18	. 18	. 17	. 17	. 17	1
13	. 21	. 21	. 21	. 21	. 21	. 21	. 21	. 21	1
14	. 25	. 25	. 25	. 25	. 25	. 25	. 25	. 24	1
16	. 29	. 29	. 29	. 29	. 28	. 28	. 28	. 28	1
18	. 32	. 32	. 32	. 32	. 32	. 32	. 32	. 32	1 1:
20	. 36	. 36	. 36	. 36	. 36	. 36	. 36	. 36	2 2 2
22	. 40	. 40	·. 40	. 40	. 40	. 40	. 40	. 40	2
14	. 44	. 44	. 44	. 44	. 44	. 44	. 44	. 43	2
26	. 49	. 49	. 49	. 49	. 49	. 48	. 48	. 48	2
8	. 53	. 53	. 53	. 53	. 53	. 53	. 52	. 52	3
0	. 58	. 58	. 58	. 57	. 57	. 57	. 57	. 56	3
32	. 63	. 63	. 63	. 63	. 62	. 62	. 61	. 61	3
14	. 68	. 68	. 68	. 67	. 67	. 67	. 67	. 66	3
6	. 72	. 72	. 72	. 72	. 72	. 72	. 71	. 71	3
18	. 78	. 78	. 78	. 78	. 78.	. 78	. 77	. 76	3
12	. 84 . 90	. 84 . 90	. 84	. 84	. 83	. 83	. 83	. 82	4:
14	. 96	. 90	. 90	. 96	. 96	. 89 . 95	. 88	. 88	4
16	1. 04	. 96 1. 04	. 96 1. 04	1. 03	1. 03	1. 03	. 95 1. 02	. 94 1. 01	40
18	1. 11	1. 11	1. 11	1. 11	1. 11	1. 10	1.02	1.01	45
0	1. 19	1. 19	1. 19	1. 19	1. 19	1. 18	1. 10 1. 17 1. 26	1. 09 1. 17 1. 25	48 50 53
2	1. 28	1. 28	1. 28	1. 28	1. 27	1. 27	1 26	1 25	5
4	1. 38	1. 38	1. 38	1. 37	1. 37	1. 36	1. 36	1.35	5
6	1. 48	1.48 .	1. 48	1. 48	1. 47	1. 47	1 46	1. 35 1. 45	5
8	1. 60	1. 60	1. 60	1. 60	1. 59	1. 58	1. 46 1. 58	1. 57	58
0	1. 73	1. 73	1. 73	1. 73	1. 72	1. 72	7 77 3	1. 69	6
32	1. 88	1.88	1. 88	1. 88	1.87	1. 86	1. 85	1.84	6
14	2.05	2.05	2.05	2. 05	2.04	1. 86 2. 03 2. 22	1. 85 2. 02 2. 21 2. 44 2. 71	2, 01	64
6	2. 25	2. 25	2. 24	2. 24	2. 23	2. 22	2. 21	2. 20 2. 42	60
8	2.48	2.48	2. 47	2. 47	2.46	2. 45	2. 44	2.42	68
0	2. 75	2. 75	2. 75	2.74	2. 73	2.72	2. 71	2.69	70
2	3. 08	3. 08	3. 08	3. 07	3.06	3.05	3. 03 1	3.01	7%
4	3. 49	3. 49	3. 49	3. 48	3. 47	3. 45	3. 43	3. 41	74
6	4. 01	4. 01	4. 01	4. 00	3. 99	3. 97	3. 95	3. 92	70
8	4. 70	4. 70	4. 70	4. 69	4. 68	4. 66	4. 63	4. 60	78
1	5. 67	5. 67	5. 67	5. 66	5. 64	5. 62	5. 59	5. 55	80 81
2	6. 31 7. 12	6. 31 7. 11	6. 31 7. 11	6. 30 7. 10	6. 28	6. 25	5. 59 6. 22 7. 01	6. 18	87
3	8. 15	8. 14	8. 14	8. 13	7. 07 8. 10	7. 05	8. 02	6. 96 7. 97	88
4	9. 52	9. 51	9. 51	9. 49	9. 46	8. 07 9. 42	9. 37	9. 31	84
5	11. 43	11. 43	11. 42	11. 40	11. 37	11. 32	11. 25	9. 31	85
6	14. 30	14. 30	14. 29	14. 27	14. 22	14. 16	14. 08	13. 99	86
7	19. 08	19. 08	19. 07	19. 03	18. 98	18. 91	18. 79	18. 66	87
8	28. 63	28. 63	28. 62	28. 57	28. 48	28. 35	28. 20	28. 01	88
9	57. 29	57. 28	57. 26	57. 15	56. 98	56. 73	56. 42	56. 04	89
	0°	1°	2°	4°	6°	8°	10°	12°	

TABLE 48.

Latitude Factors.

f is the change in latitude due to a change of 1' in longitude.

Bear- ing.	14°	16°	18°	20°	22°	24°	26°	28°	Bea ing
0	,	,	,	,	,	,	,		
1	0. 02	0.02	0. 02	0.02	0.02	0.02	0.02	0. 02	1
	. 03	. 03	. 03	. 03	. 03	. 03	. 03	. 03	
3	. 05	.05	. 05	. 05	. 05	. 05	. 05	. 05	2 3 4 5
2 3 4 5	. 07	.07	. 07	.07	.06	.06	. 06	. 06	
5	.08	.08	. 08	.08	. 08	. 08	. 08	. 08	
6	. 10	.10	. 10	. 10	.10	. 10	. 09	. 09	
7	. 12	. 12	. 12	. 12	. 11	. 11	.11	.11.	
8	. 14	.14	. 13	. 13	. 13	. 13	. 13	. 12	
10	. 17	. 17	. 17	.17	. 16	. 16	. 16	. 16	1
12	. 21	. 20	. 20	. 20	. 20	.19	. 19	. 19	1
14	. 24	.24	. 24	. 23	. 23	. 23	. 22	. 22	1
16	.28	.28	. 27	. 27	. 27	. 26	. 26	. 25	10
18	.32	.31	. 31	. 30	. 30	. 30	. 29	. 25	18
20	. 35	. 35	. 35	. 34	. 34	. 33	. 33	. 32	20
22	. 39	. 39	. 38	. 38	. 38	. 37	. 36	. 36	25
22 24	. 43	. 43	. 42	. 42	.41	.41	. 40	. 39	2
26	. 47	. 47	. 46	. 46	. 45	. 45	. 44	. 43	2
28	. 52	. 51	. 51	. 50	. 49	. 49	. 48	. 47	2
30	. 56	. 56	. 55	. 54	. 53	. 53	. 52	. 51	3
32	. 61	. 60	. 60	. 59	. 58	. 57	. 56	. 55	3
34	. 65	. 65	. 64	. 63	. 63	. 62	. 61	. 59	3
36	. 70	. 70	. 69	. 68	. 68	. 66	. 65	. 64	3
38	. 76	. 75	. 74	. 74	. 72	.71	. 70	. 69	3
40	. 81	. 81	. 80	. 79	. 78	. 77	. 75	. 74	4
42	. 88	. 87	. 85	. 85	. 83	. 82	. 81	. 79	4
44	. 93	. 93	. 92	. 91	. 89	. 88	. 87	. 85	4
46	1. 01	1.00	. 99	. 97	. 96	. 95	. 93	. 91	4
48	1.08	1. 07	1.06	1.04	1. 03	1.02	1.00	. 98	41
50	1. 16	1. 15	1. 13	1. 12	1. 10	1.09	1. 07	1.05	5
52	1. 24	1. 23	1. 22 1. 31	1. 20	1. 19	1. 17	1. 15	1. 13	5
54	1. 34	1. 32	1. 31	1. 29	1. 28	1. 26	1. 24	1. 22	5
56	1. 44	1. 43	1.41	1. 39	1. 38	1. 35	1. 33	1. 31	5
58	1. 55	1. 54	1. 52	1. 50	1. 48	1. 46	1.44	1. 41	5
60	1. 68	1. 67	1. 65	1. 63	1. 61	1. 58	1. 56	1. 53	6
62	1. 83	1.81	1. 79	1. 77	1. 74	1. 72	1. 69	1. 66	6
64	1. 99	1. 97	1. 95	1. 93	1. 90	1.87	1. 84 2. 02	1. 81 1. 98	6
66	2. 18	2. 16	2. 14	2. 11	2. 08 2. 30	2. 05	2. 02	1. 98 2. 18	6
68	2. 40	2. 38	2. 35	2. 33		2. 26	2. 23 2. 47		6
70 72	2. 67 2. 99	2. 64 2. 96	$\begin{array}{c c} 2.61 \\ 2.93 \end{array}$	2. 58 2. 89	2. 55 2. 85	$\begin{bmatrix} 2.51 \\ 2.81 \end{bmatrix}$	2. 47	2. 43 2. 72	7
74	3. 38	2. 96 3. 35	2. 93 3. 32	2. 89 3. 28	3. 23	3. 19	3. 14	3. 08	7
76	3. 38	3. 35	3. 32	3. 28	3. 23	3. 66	3. 61	3. 54	7
78	4. 56	4. 52	4. 47	4. 42	4. 36	4. 30	4. 23	4. 15	7
80	5. 50	5. 45	5. 39	5. 33	5. 26	5. 18	5. 10	5. 01	8
81	6. 13	6. 07	6. 01	5. 93	5. 86	5. 77	5. 68	5 58	8:
82	6. 90	6.84	6. 77	6. 69	6. 60	6. 50	6. 40	5. 58 6. 28	8
83	7. 90	7. 83	7. 75	7. 65	7. 55	7. 44	7. 32	7. 19	8
84	9. 23	9. 15	9. 05	8. 94	8. 82	8. 69	8, 55	8. 40	8
85	11. 09	10. 99	10.87	10. 74	10. 60	10. 44	10. 26	10. 09	8
86	13, 88	13, 75	13. 60	13, 44	13. 26	13. 07	12.86	12.63	80
87	.18. 51	18. 34	18. 15	17. 93	17. 69	17. 43	17. 15	16, 85	8
88	27. 78	27. 52	27. 23	26.91	26. 55	26. 16	25. 74	25. 28	88
89	55. 59	55. 07	54. 49	53. 84	53. 12	52. 33	51. 50	50. 58	8
	14°	16°	18°	20°	22°	24°	26°	28°	

TABLE 48.

Latitude Factors.

f is the change in latitude due to a change of 1' in longitude.

La	tit	ude

ear-	30°	32°	34°	36°	38°	40°	42°	44°	Bear ing.
0	,		,	,	,	,	,	,	0
1	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1
2	. 03	. 03	. 03	. 03	. 03	. 03	. 03	. 03	2
3	. 05	. 05	. 04	. 04	. 04	. 04	. 04	. 04	3
4	.06	. 06	. 06	. 06	. 06	. 05	. 05	. 05	5
5	. 08	.07	.07	.07	. 07	. 07	.07	. 06 . 08	6
7	11	.10	.10	. 10	.10	. 09	.09	.09	7
8	.12	. 12	. 12	.11	.11	.11	.10	. 10	8
10	. 15	. 15	. 15	. 14	. 14	. 14	. 13	. 13	10
12	. 18	. 18	. 18	. 17	. 17	. 16	. 16	. 15	12
14	. 22	. 21	. 21	. 20	. 20	. 19	. 19	. 18	14
16 18	. 25	. 24	$\begin{array}{c c} .24 \\ .27 \end{array}$. 23	. 23	. 22	. 21	$\begin{array}{c} \cdot 21 \\ \cdot 23 \end{array}$	16
20	.32	.31	.30	. 29	. 20	.28	. 27	$\frac{.25}{.26}$	20
22	. 35	.34	. 34	. 33	.32	.31	.30	.29	2
24	. 39	.38	. 37	. 36	. 35	. 34	. 33	. 32	24
26	. 42	. 41	. 40	. 40	. 38	. 37	. 36	. 35	26
8	. 46	. 45	. 44	. 43	. 42	. 41	. 40	. 38	28
30	. 50	. 49	. 48	. 47	. 45	. 44	. 43	$.41 \\ .45$	30
4	. 54	. 53	. 52	. 55	. 49	. 48	.50	. 49	34
36	. 63	. 62	. 60	. 59	. 57	.56	. 54	. 52	30
88	. 68	. 66	. 65	. 63	. 62	. 60	. 58	. 56	38
10	. 72	. 71	. 69	. 68	. 66	. 64	. 63	. 60	44
12	. 78	. 76	. 75	. 73	. 71	. 69	. 67	. 65	4:
14 16	. 83 . 90	. 82	. 80 . 86	. 78	. 76 . 82	.74	.72	$.69 \\ .74$	44
18	. 96	.94	. 92	. 90	. 88	. 85	. 83	. 80	48
50	1.03	1.01	. 99	. 96	. 94	. 91	. 88	.86	50
52	1.11	1.09	1.06	1.04	1.01	. 98	. 95 1. 02	. 92	5%
54	1. 19	1. 16	1. 14	1.11	1.08	1.05	1.02	. 99	54
56 58	1. 28	1. 26	1. 23 1. 33	1. 20 1. 30	$\begin{array}{c c} 1.17 \\ 1.26 \end{array}$	1. 14 1. 23	1. 10 1. 19	1. 07 1. 15	56
60	1. 39 1. 49	1. 36 1. 47	1. 33	1. 40	1. 26	1. 23	1. 19	$\frac{1.15}{1.25}$	60
62	1. 63	1. 59	1. 56	1. 52	1. 48	1. 44	1. 40	1. 35	6
64	1. 78	1.74	1. 70	1.66	1.62	1. 57	1.52	1.48	64
66	1.95	1. 91	1.85	1.82	1.77	1. 72	1. 67	1.62	66
68	2. 14	2. 10	2. 05	2.00	1. 95	1. 90	1.84	1.78	68
70 72	2. 38 2. 67	2. 33 2. 61	2. 28 2. 55	2. 22 2. 50	2. 17 2. 43	$\begin{bmatrix} 2.10 \\ 2.36 \end{bmatrix}$	$\begin{array}{c c} 2.04 \\ 2.29 \end{array}$	$\frac{1.98}{2.21}$	70
74	3. 02	$\frac{2.01}{2.96}$	2. 89	2. 82	2. 75	2. 67	$\frac{2.29}{2.59}$	2. 51	7
76	3. 47	3.40	3. 33	3. 25	3. 16	3. 07	2. 98	2, 89	70
78	4.07	3.99	3.90	3.81	3.71	3. 60	3. 50	3.38	78
30	4.91	4.81	4. 70	4. 59	4.47	4. 34	4. 22	4.08	80
31	5. 47	5.35	5. 24	5. 11	4. 98	4.84	4. 69 5. 29	4.54 5.12	81
33	6. 16 7. 05	6. 03 6. 91	5. 90 6. 75	5. 76 6. 59	5. 61 6. 42	5. 45 6. 24	6. 05	5, 12	85
34	8. 24	8. 07	7. 93	7. 70	7. 50	7. 29	7. 07	6. 84	85 84
35	9. 90	9. 69	9.48	9. 25	9.01	8.75	8.49	8, 22	8
86	12.39	12. 13	11.86	11. 57	11. 27	10. 95	10. 63	10. 29	86
87	16. 52	16. 18	15. 82	15. 44	15. 04	14. 62	14. 18	13. 73	87
88	24. 80 49. 61	24. 28 48. 58	23. 74 47. 50	23. 17 46. 36	22. 56 45. 14	21. 93 43. 98	21. 28 42. 58	20. 60 41. 21	88
	30°	32°	34°	36°	38°	40°	42°	44°	

Latitude Factors.

f is the change in latitude due to a change of 1' in longitude.

Latitude.

ear- ng.	46°	48°	50°	52°	54°	56°	58°	60°	Bea ing
•	,		,		,	,			
1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1
2	. 02	. 02	. 02	. 02	. 02	. 02	.02	. 02	
3	.04	.03	. 03	.03	.03	.03	.03	. 03	4
2 3 4 5	. 05	.05	.04	.04	.04	. 04	.04	.03	1
5	. 06 I	.06	.06	. 05	. 05	05	.04	. 04	
6	. 07	.07	. 07	.06	. 06	.06 .07 .08	. 06 . 06 . 07 . 09	. 05	
6 7	.07	. 08	. 08	.08	. 07	. 07	. 06	.05	
8	. 10	. 09	. 09	.08	. 08	. 08	. 07	. 07	1
10	. 12	. 12	. 11	. 11	. 10	. 10	. 09	. 09	1
12	. 15	. 14	. 14	. 13	. 13	. 12	.11	.11	1
14	. 17	. 17	. 16	. 15	. 15	. 14	.13	.12	1
16	. 20	. 19	. 18	. 18	. 17	. 16	. 15	. 14	1
18	. 23	. 22	. 21	. 20	. 19	.18	. 17	.16	1
20	. 25	. 24	. 23	. 22	. 21	. 20	. 19	. 18	2 2 2
22 24	. 28	. 27	. 26	. 25	. 24	. 23	. 21	$\begin{array}{c} \cdot 20 \\ \cdot 22 \end{array}$	2
24	. 31	. 30	. 29	. 27	. 26	. 23 . 25 . 27 . 30	. 24	. 22	2
26	. 34	. 33	. 31	. 30	. 29	. 27	. 26	. 24	2
28 30 32	. 37 . 40	. 36	. 34	. 33	. 31	. 30	. 28	. 27	2
30	.40	. 39	. 37	. 36	. 34	. 32	.31	. 29	3
32	. 43	. 42	. 40	. 38	. 37	. 35	. 33	. 31	3
34	. 47	. 45	. 43	. 41	. 40	. 38	.36	. 34	3
36	. 51	. 49	. 47	. 45	. 43	. 41	. 38	. 36	3
38 40	.54	. 52	. 50	.48	. 46	. 44	41	. 39	3
	. 58	. 56	. 54	. 52	. 49	. 47	. 44	. 42	4
42 44	. 63	. 60	. 58	. 56	. 53	. 50	. 48	.48	4
46	. 72	. 65	. 62	. 60	. 57	. 54	. 55	. 52	4
48	.77	. 74	.71	. 64	. 61 . 65	. 58 . 62	. 59	.56	4
50	. //	.80	.77	.73	.70	. 67	. 59	. 50	5
52	. 83	. 86	.82	.79	.75	.72	. 63	. 60 . 64	5
54	96	. 92	. 88	. 85	. 81	.77	.73	. 69	5
56	. 96 1. 03 1. 11	. 99	. 95	. 91	. 87	. 83	.79	.74	5
58	1 11	1. 07	1. 03	. 99	. 94	. 89	85	. 80	5 6
58 60	1. 20 L	1 16	7 17	1.07	1.02	. 97	. 92 1. 00 1. 09 1. 19	. 87	6
62	1. 31	1. 26 1. 37	1. 21 1. 32	1. 16	1. 02 1. 11	1.05	1.00	. 94	6
64	1.42	1. 37	1. 32	1. 26	1. 20	1. 15	1.09	1. 03 1. 12	6
66	1. 42 1. 56	1.50	1.44	1. 26 1. 38	1. 20 1. 32	1. 15 1. 26	1.19	1. 12	6
68	1.72	1.66	1.59	1.52	1.45	1. 38 1. 54	1. 31 1. 45	1. 24	6
70	1. 91	1. 84	1, 77	1.69	1.61	1.54	1.45	1. 37	7
72	1. 72 1. 91 2. 14	2, 06	1.99	1.89	1. 81	1.72	1 63 1	1. 24 1. 37 1. 54	7
72 74	2.42	2. 33 2. 68	2. 24 2. 58	2, 15	2, 05	1 95	1.85	1 74	7
76 78	2. 79	2. 68	2. 58	2.47	2. 36	2. 24	2. 13	2.01	7
78	3. 27 3. 94	3. 15	3.02	2.90	2.77	2. 24 2. 63	1. 85 2. 13 2. 49 3. 01	2. 01 2. 35 2. 84	7
80	3. 94	3, 80	3.70	3.49	3. 33	3. 17	3. 01	2.84	8
81	4.39	4. 23 4. 76	4.06	3.89	3.71	3.53	3. 35 3. 77	3. 16 3. 56	8
82	4. 94	4.76	4.57	4.38	4.18	3. 98	3. 77	3. 56	8
83 84	5. 66	5, 45	5. 24	5. 01	4. 79	4.56	4. 32	4. 07	8
84	6. 61	6. 37	6. 12	5.86	5. 59	5. 32 6. 39	5.04	4.76	8
85 86	7. 94	7. 65	7. 35	7.04	6. 72	6. 39	6. 06 7. 58 10. 11	5. 72	8
80	9. 94 13. 26	9. 57 12. 77	9. 19 12. 27	8. 81 11. 75	8.41	8.00	7.58	7. 15	8
87	13. 26	12.77	12. 27	11.75	8. 41 11. 22 16. 83	10.67	10.11	9. 54	8
88 89	19. 89 39. 80	19. 16 38. 34	18. 41 36. 83	17. 64 35. 24	16. 83 33. 68	16. 01 32. 04	15. 17 30. 36	14. 32 28. 65	88
	46°	48°	50°	52°	54°	56°	58°	60°	

Corr. to Lat.=Error in Long. $\times f$.







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